

1/9/07 - 00610

Aquifer Test Results for Deep Groundwater at Site 2, St. Juliens Creek Annex, Chesapeake, Virginia

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DATE: January 9, 2007

1 Introduction

This technical memorandum documents the results of the aquifer testing and groundwater sampling conducted to evaluate the presence of chlorinated volatile organic compounds (CVOCs) detected in deep groundwater (Yorktown Aquifer) at Site 2, St. Juliens Creek Annex (SJCA), Chesapeake, Virginia. The technical approach and field methodology was presented in the *Final Technical Memorandum – Expanded Remedial Investigation Work Plan Addendum for Deep Groundwater at Site 2* (CH2M HILL, May 2006).

The objective of this project was to investigate the potential causes for the presence of CVOCs in the deep groundwater at monitoring well SJS02-MW10D. The following field activities were conducted to support this objective:

- Aquifer pump testing on the Yorktown Aquifer at Site 2, using monitoring well SJS02-MW10D, and
- Groundwater sampling at monitoring well SJS02-MW10D for VOCs analysis prior to and following the aquifer pumping test.

2 Background

Site 2 (Waste Disposal Area B) was an unlined waste disposal area that operated from 1921 to 1947. During the Remedial Investigation (RI) (CH2M HILL, February 2004) and the Expanded RI (CH2M HILL, October 2005) both shallow (Columbia Aquifer) and deep groundwater at Site 2 were evaluated for potential contamination.

A localized CVOC plume was discovered in the shallow groundwater at Site 2 (Figure 1) using a Membrane Interface Probe (MIP). The plume was found to be confined to a relatively small area (17,000 square feet [ft²]). Elevated CVOCs were encountered at a depth of approximately 4 ft below ground surface (bgs), the approximate elevation of the water

table, and extended to the total depth logged during the MIP investigation, approximately 16 ft, or until the underlying Yorktown Confining Unit was encountered. Several monitoring wells were installed to characterize the CVOC plume.

The highest CVOC concentrations were of trichloroethene (TCE) detected in groundwater samples collected from monitoring wells SJS02-MW07S (270,000 µg/L) and SJS02-MW10S (330,000 µg/L). These elevated concentrations indicate the potential presence of free phase TCE, which is a dense non-aqueous phase liquid (DNAPL) and tends to migrate vertically downward through the water column until a significant permeability contrast is encountered. Additionally, the significant presence of TCE degradation products (i.e., 1,2-dichloroethene and vinyl chloride) indicates that natural remediation processes are occurring.

One deep monitoring well (SJS02-MW10D) was installed within the area of the shallow groundwater plume, to evaluate the potential migration of CVOCs from the Columbia Aquifer to the Yorktown Aquifer. The deep monitoring well was installed in a manner consistent with CH2M HILL standard operating procedures (SOPs) so as to minimize the potential for cross-contamination between aquifers. Construction of the well included a double casing into the Yorktown Confining Unit, with the well screening the top five feet of the Yorktown Aquifer.

TCE and its breakdown products were detected at SJS02-MW10D in significant concentrations. No CVOCs were detected in upgradient (SJS02-MW01D) or downgradient (SJS02-MW02D) monitoring wells. These monitoring well locations are shown on Figure 2. Based on previous investigations, the Yorktown Confining Unit appears to be intact at Site 2 and should retard the migration of CVOCs from the shallow to deep groundwater; therefore, the detection of CVOCs warranted further investigation. The Expanded RI recommended additional investigation to aid in determining the potential cause for the presence of TCE detected in deep groundwater at SJS02-MW10D.

An aquifer pump test and sampling were conducted to investigate the possible origins of the TCE detected in the deep aquifer, including:

- Transport of the TCE into the deep aquifer during the monitoring well installation as a result of the drilling process,
- Migration of the relatively dense TCE into the Yorktown Aquifer as a result of a leaking Yorktown Confining Unit, or
- Migration of the TCE into the Yorktown Aquifer via a conduit created by the installation of the monitoring well.

3 Field Investigation Activities and Results

A description of the field activities and results is included in the following subsections. All work was conducted in accordance with the site-specific work plan (CH2M HILL, May 2006) and the *Final Master Project Plan, St. Juliens Creek Annex, Chesapeake, Virginia* (CH2M HILL, July 2003).

3.1 Aquifer Testing Activities

Aquifer testing was performed in SJS02-MW10D. Aquifer testing activities included the following:

- Background Monitoring
- Preliminary Testing
- Well Pumping and Recovery

Background Monitoring

Background barometric pressure and ambient water level measurements were collected from the test well (SJS02-MW10D) and nearby shallow (SJS02-MW10S and SJS02-MW12S) and deep (SJS02-MW01D) observation wells to identify any extraneous hydraulic influences that would have to be removed from the pump test data set. The background measurements were conducted using pressure transducers over a 72 hour period from May 1 to May 4, 2006 prior to the pump test. Figure 3 provides a chart of the background measurements. The results show that the water levels in the deep aquifer wells (SJS02-MW01D and SJS02-MW10D) are influenced by the tidal cycle. This influence interferes with the effects of the aquifer test. Therefore, the background measurements were used to offset the tidal influence in order to isolate the effect of the pumping at the test well. An explanation of the tidal correction is provided in Attachment A. The background measurements did not indicate a tidal influence in the shallow aquifer wells (SJS02-MW10S and SJS02-MW12S). This has been observed at other locations in Southeastern Virginia, and may be attributed to a much lower hydraulic conductivity in the shallower aquifer and a higher storage coefficient, both of which suppress tidal propagation in the aquifer.

Preliminary Testing

The test well was installed for the purpose of collecting groundwater samples and not for production. It was constructed with a two inch inside diameter; limiting the size of the pump and ability to obtain a desirable flow rate and adequately stress the aquifer. Therefore, preliminary yield testing was conducted to assess the feasibility of proceeding with the aquifer test and determine the production capacity of the test well, SJS02-MW10D.

The test well was pumped for 90 minutes on May 16, 2006 to evaluate the yield obtained using a Grundfos Rediflo 2 submersible pump. The pump was lowered to the bottom of the well, which placed the intake for the pump approximately 1 ft above the bottom of the five ft well screen (67 ft bgs). During testing, the flow rate of the pump was gradually increased to a maximum sustainable rate of 5 gallons per minute (gpm). The flow rate achieved (5 gpm) was less than the maximum designed flow rate for the pump (10 gpm). This was likely a result of head loss within the well due to inefficiency caused by the relatively short screened interval and small well diameter of 2 inches. The achieved flow rate was within the minimum range (5 to 6 gpm) anticipated necessary to perform the pump test.

A water level indicator was used to record water levels and ensure that the drawdown in the test well had stabilized. The water level in the test well stabilized at approximately 46 ft below the top of casing with an approximate drawdown of 33 ft. An estimated 400 gallons of groundwater was purged during the well yield testing.

Well Pumping and Recovery

The aquifer pumping test was conducted over a period of approximately nine hours on May 17, 2006. Transducers were placed in the test well (SJS02-MW10D), deep aquifer observation well (SJS02-MW01D), and the two shallow aquifer observation wells (SJS02-MW10S and SJS02-MW12S). The test well was pumped using a Grundfos RediFlo 2 submersible pump. The initial depth to water in the test well prior to the well yield test was compared to the initial depth to water prior to the pump test to ensure that the test well had recovered following the well yield testing. Manual water level measurements were periodically collected at the test and observation wells to confirm the pressure transducer readings. In addition, water level measurements were also collected at two additional deep aquifer wells (SJS02-MW02D and SJS02-MW05D) to provide additional data (locations shown in Figure 2).

During the test, a maximum flow rate of 5.6 gpm was reached. This value is slightly higher than that achieved during the well yield test and may result from redevelopment of the well during the preliminary testing. Pumping was terminated after nine hours due to a lack of observable drawdown in the observation wells and stabilized water level in the pumping well. The recovery of the test and observation wells was recorded until the water level reached approximately 95% of the initial water level. Approximately 2,700 gallons of groundwater was purged during the aquifer pumping test.

The shallow aquifer wells (SJS02-MW10S and SJS02-MW12S) were not impacted by pumping in the test well. The deep observation well (SJS02-MW01D) showed a limited response by the pumping at the test well (approximately 0.1 ft). The limited influence of the pumping well is likely related to the short screened interval (5 ft), lack of penetration into the deep aquifer (5 ft), and limitations of the two inch diameter well on the size of the pump and flow rate. The data from the aquifer pumping test and an analysis of the deep aquifer properties is provided in Attachment B.

3.2 Groundwater Sampling

The historical analytical results from SJS02-MW10D (collected in December 2004, January 2005, and March 2005) show concentrations of TCE that significantly exceeded the Maximum Contaminant Level (MCL) of 5 µg/L. The highest concentration (2,200 µg/L) was found in the sample collected following monitoring well installation in December 2004. Subsequent sampling rounds (January and March 2005), conducted to confirm the initial result, demonstrated a significant decrease in TCE concentrations (700 and 900 µg/L, respectively).

A baseline groundwater sample was collected at SJS02-MW10D on May 16, 2006 prior to the preliminary testing. A second groundwater sample was collected on May 17, 2006 after the completion of the aquifer pumping test and subsequent recovery to evaluate CVOC concentrations following the withdrawal of significant amounts of groundwater from the deep aquifer. A third and fourth groundwater sample was collected on June 22, 2006 and November 28, 2006 to evaluate the long-term impact of the removal of groundwater during the aquifer testing. The groundwater samples were analyzed for Target Compound List (TCL) VOCs and collected using a peristaltic pump and low-flow purging and sampling techniques to be consistent with previous sampling rounds.

The current and historical data detailing the exceedances of the MCL for TCE at SJS02-MW10D are provided in Table 1. The raw analytical data is provided in Attachment C. The samples collected prior to, immediately following, one month following the aquifer testing, and six months following the aquifer testing indicated further reduction of TCE concentrations (3.9 J, 10 U, 0.26 J, and 0.5 U µg/L respectively). Additionally, the presence of vinyl chloride (3.6 J, 10 U, 6.5, and 1.7 µg/L, respectively) indicates that natural remediation processes are occurring.

3.3 Investigation-Derived Waste

Investigation-derived waste (IDW) consisting of approximately 3,100 gallons of purge water and equipment decontamination water generated during the aquifer testing and groundwater sampling was containerized in a Baker tank. Waste characterization samples (toxicity characteristic leaching procedure (TCLP) and reactivity, corrosivity, and ignitability) were collected following the completion of the field investigation activities. During analysis of the waste samples, the tank was temporarily stored at Site 2. The IDW was properly disposed of as non-hazardous water by subcontractors within 90-days of generation.

4 Conclusions and Recommendations

The aquifer testing was completed with no interruptions or malfunctions, however well construction did result in limitations to the effectiveness of the test (i.e., low flow rate and only partial penetration of the aquifer). The results of the time-drawdown data from the observation well are consistent with regional information for the deep aquifer with an estimated transmissivity of 1,521 ft²/day and a storage coefficient of 3.4 × 10⁻⁴. This supports the validity of the data obtained from the testing.

The hydraulic and analytical data obtained from the aquifer testing allow anecdotal conclusions to be made about the possible reasons for the contamination presented in the Work Plan as follows:

- Flattening of the drawdown curve was not observed within the nine hour test indicating the leakance of the Yorktown Confining Unit is as low as suggested in Hamilton and Larson, 1988. It can be concluded that the confining unit is not leaky enough to cause the TCE contamination.
- No drawdown was observed in monitoring well SJS02-MW10S, a shallow well located adjacent to the deep test well (SJS02-MW10D), indicating that the drawdown from the aquifer test was not transmitted vertically up to the shallow aquifer. It can be concluded that a vertical conduit created during monitoring well construction is not the source of the TCE contamination.
- TCE was not detected in groundwater collected from SJS02-MW10D immediately following the test and subsequent samples had concentrations only slightly above detection limits to a non-detect in the most recent sample. A significant rebound in TCE concentrations would indicate the presence of DNAPL or the existence of a contaminant plume. Because the concentrations decreased during the test and only a slight rebound

was observed afterward, it may be concluded that the TCE was carried down as a contaminant during well installation.

The analytical results, demonstrating significant reduction in the concentration of TCE (from 2,200 to 0.5U µg/L), support the conclusions of the aquifer test, suggesting neither continual transmission of the CVOCs from the shallow to the deep aquifer nor existence of a large dissolved contaminant plume. Based on the field investigation results, it is likely that the source of TCE in the deep aquifer well (SJS02-MW10D) is contaminated soil, free product, or a volume of contaminated groundwater carried from the shallow to the deep aquifer during the installation of the monitoring well. It is possible that the decreasing CVOC concentrations in the deep aquifer can be attributed to removal of the CVOC-contaminated groundwater. The TCE source may have been effectively removed over repeated purging and sampling, the additional development, and pump testing.

It is recommended that one additional groundwater monitoring event be conducted at well SJS02-MW10D in April 2007. The sample will be analyzed for CVOCs analysis to verify the findings of this technical memorandum. If the follow-up monitoring demonstrates that the CVOC concentrations in the monitoring well do not rebound, the abandonment of deep monitoring well SJS02-MW10D is recommended to remove it as a potential conduit for transmission of the CVOC plume (DNAPL) from the shallow aquifer into the deep aquifer. Should results from the follow-up monitoring reveal significant increases (i.e., above the MCLs) in CVOC concentrations in deep monitoring well SJS02-MW10D then this recommendation will be reassessed.

5 References

- CH2M HILL, July 2003. *Final Master Project Plan, St. Juliens Creek Annex, Chesapeake, Virginia.*
- CH2M HILL, February 2004. *Final Remedial Investigation/Human Health Risk Assessment/Ecological Risk Assessment Report for Site 2. St. Juliens Creek Annex, Chesapeake, Virginia.*
- CH2M HILL, October 2005. *Draft Expanded Remedial Investigation Report for Site 2. St. Juliens Creek Annex, Chesapeake, Virginia.*
- CH2M HILL, May 2006. *Final Technical Memorandum – Expanded Remedial Investigation Work Plan Addendum for Deep Groundwater at Site 2. St. Juliens Creek Annex, Chesapeake, Virginia.*
- Hamilton, A.P. and Larson, J.D., 1988. *Hydrogeology and Analysis of the Groundwater Flow System in the Coastal Plain of Southeastern Virginia.* USGS WRI Report 87-4240. 1988.
- Harsh and Lacznak, 1990. *Conceptualization and Analysis of Ground-Water Flow System in the Coastal Plain of Virginia and Adjacent Parts of Maryland and North Carolina.* USGS Professional Paper 1404-F.

Table 1
Groundwater Exceedances of the MCLs
Monitoring Well SJS02-MW10D
Deep Groundwater at Site 2
St. Juliens Creek Annex
Chesapeake, Virginia

Sample ID	MCL	SJS02-MW10D-04D	SJS02-MW10D-05A	SJS02-MW10D-05A2	SJS02-MW10D-06B	SJS02-MW10D-06B2 ¹	SJS02-MW10D-06B3 ¹	SJS02-MW10D-06D ^{1,2}
Sample Date		12/03/04	01/18/05	03/28/05	05/16/06	05/17/06	06/22/06	11/28/06
Chemical Name								
Volatile Organic Compounds (UG/L)								
1,1-Dichloroethene	7	0.68	83 U	10 U	10 U	10 U	0.5 U	0.5 U
Acetone	--	4.9 J	83 U	10 U	10 U	10 U	5 U	5 U
Chloroform	80	7.8	83 U	10 U	10 U	10 U	0.5 U	0.5 U
Chloromethane	--	0.5 U	83 U	10 U	10 U	10 U	0.3 J	0.5 J
Toluene	1,000	3	83 U	1 J	10 U	10 U	0.3 J	0.11 J
Trichloroethene	5	2,200	700	900	3.9 J	10 U	0.26 J	0.5 U
Vinyl chloride	2	0.53	83 U	10 U	3.6 J	10 U	6.5	1.7
cis-1,2-Dichloroethene	70	19	83 U	35	52	10 U	5.4	1.6

Notes:

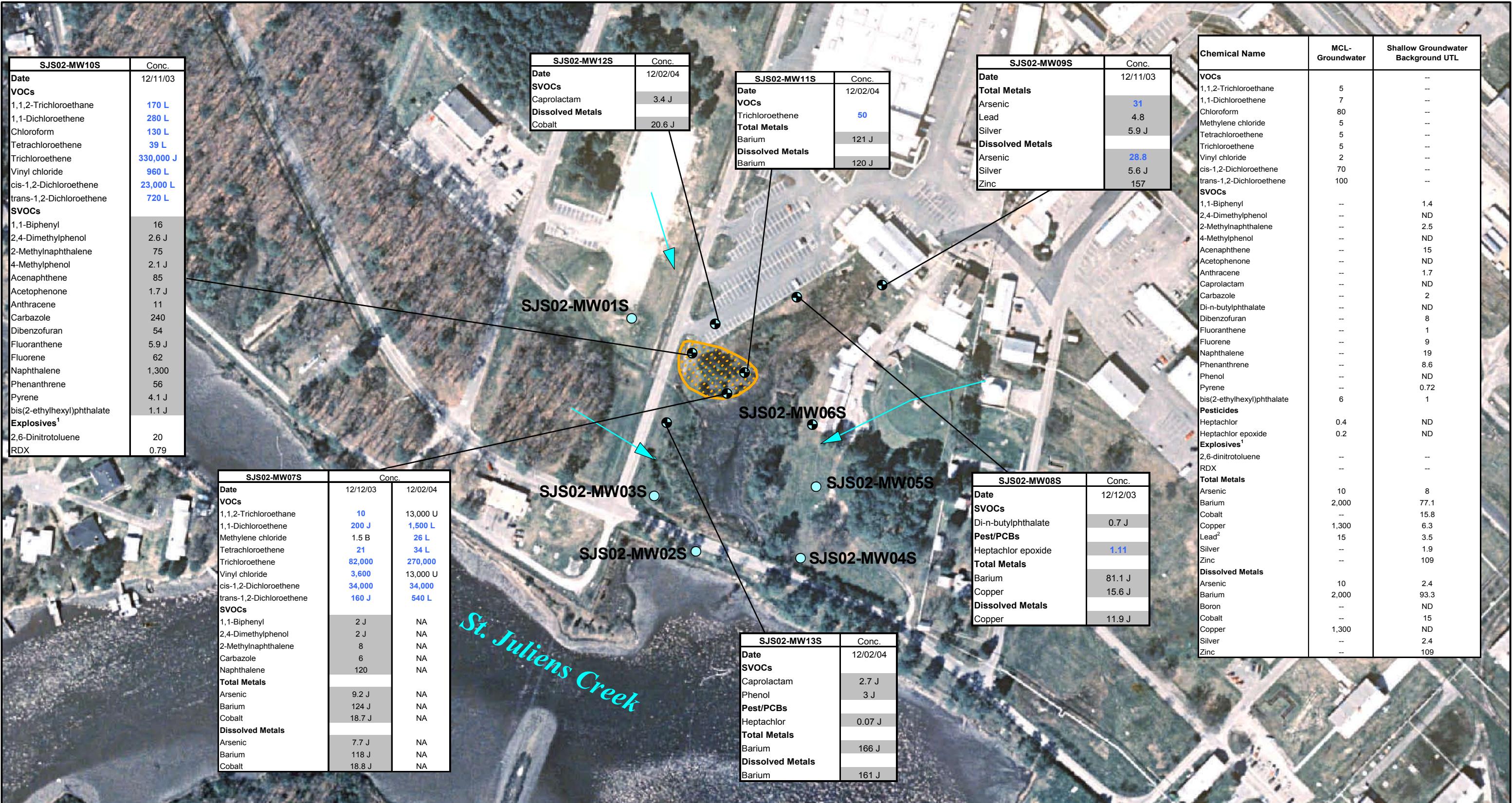
Exceeds MCL

J- Reported value is estimated

U- Not detected

¹ A duplicate was collected for this sample; the results provided are the maximum concentration between the sample and the duplicate.

² Unvalidated results shown, validated results will be provided in the Draft Final Site 2 ERI Report



LEGEND

- Shallow Monitoring Well Locations sampled during ERI
- Shallow Monitoring Well Locations not sampled during ERI
- Estimated Extent of VOC Plume
- Groundwater Flow Direction

-- no criteria
ND - No Detections
NA - Not Analyzed
J - Analyte present. Reported value is estimated.
L - Analyte present. Reported value is biased low.
U - Not Detected

Bold Blue text indicates MCL Exceedances
Shaded cells indicate Background UTL Exceedances

Conc. - Concentration
All concentrations are measured in ug/L.
All explosives detections are presented because no screening criteria exist.
²EPA Action Level for Lead

0 100 200 300 Feet

Figure 1

Shallow Groundwater Detection and Exceedances of Screening Criteria
Site 2 Expanded Remediation Investigation
St. Juliens Creek Annex
Chesapeake, Virginia

CH2MHILL



LEGEND

- Shallow Monitoring Well Locations
- Deep Monitoring Well Locations



0 150 300 Feet

Figure 2
Monitoring Wells Evaluated During the
Aquifer Pumping Test
Site 2 Expanded Remedial Investigation
St. Juliens Creek Annex
Chesapeake, Virginia

CH2MHILL

Figure 3 - Hydrographs of Background Measurements

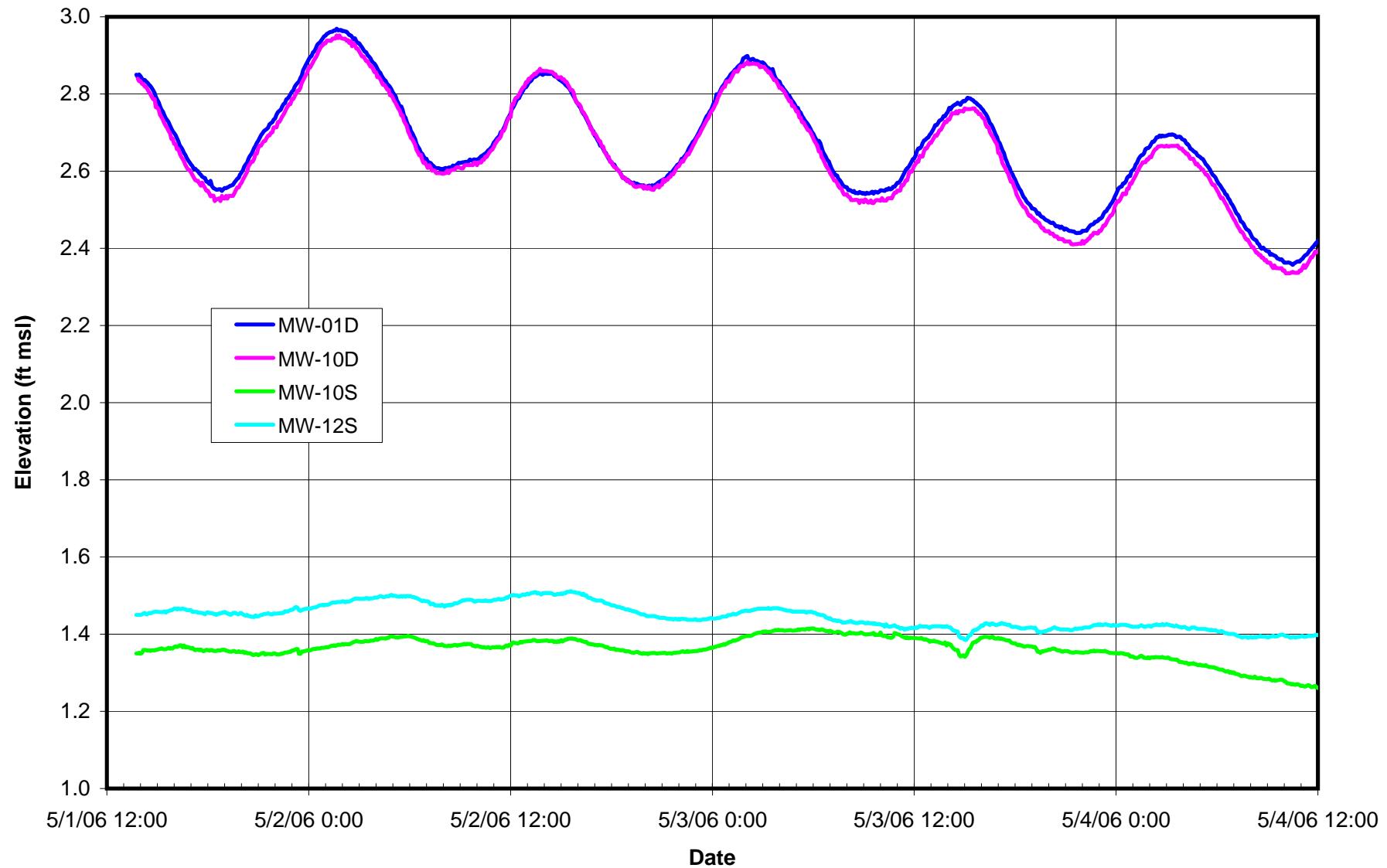
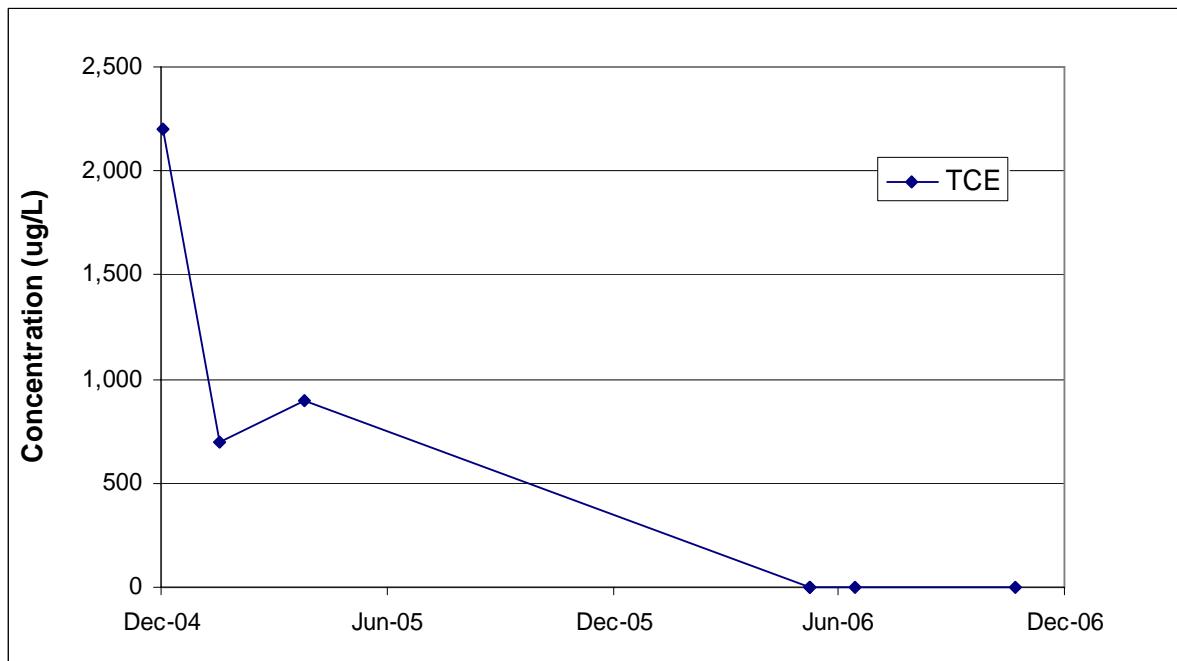


FIGURE 4
TCE Concentration Trends in SJS02-MW10D
Deep Groundwater at Site 2
St. Juliens Creek Annex
Chesapeake, Virginia



Note: The November 2006 data is based on unvalidated analytical results, validated results will be provided in the Draft Final Site 2 ERI Report.

Attachment A: Mitigation of Tidal Effects

Background monitoring revealed that the water level in the deep aquifer wells (SJS02-MW01D and SJS02-MW10D) is influenced by the tidal cycle. By comparing the tide data from the nearby Money Point tide gauge in the Southern Branch of the Elizabeth River and the tidal fluctuations in the observation well SJS02-MW01D, a lag time of 32 minutes between the tide cycle in the Southern Branch of the Elizabeth River and the deep aquifer groundwater was estimated. The impact of the tidal influence on the water levels in the observation well was estimated by calculating the tidal efficiency. Tidal efficiency is defined as the ratio of the piezometric water level amplitude (observation well) to the surface water tidal amplitude (Southern Branch of the Elizabeth River) and is represented in the following equation:

$$TE = \Delta P / \Delta H \times 100$$

Where: TE=tide efficiency

ΔP =change in piezometric level

ΔH =change in tide level

Based on the observed water levels, the tidal efficiency in the deep aquifer wells was estimated to be 13.5%.

The background measurements are provided on Tables A-1 and A-2 and the tidal correction is depicted in Figures A-1 and A-2.

Table A-1
Time Drawdown at Well MW01D Corrected for Transducer Drift and Tidal Influences

Water Level (ft msl)	Elapsed Time (min)	Drawdown (ft)
2.270	0.0	0.000
2.272	1.0	-0.002
2.271	2.0	-0.001
2.263	3.0	0.007
2.250	4.0	0.020
2.239	5.0	0.031
2.229	6.0	0.041
2.219	7.0	0.051
2.211	8.0	0.059
2.205	9.0	0.065
2.201	10.0	0.069
2.197	11.0	0.073
2.191	12.0	0.079
2.187	13.0	0.083
2.182	14.0	0.088
2.177	15.0	0.093
2.174	16.0	0.096
2.172	17.0	0.098
2.167	18.0	0.103
2.165	19.0	0.105
2.162	20.0	0.108
2.161	21.0	0.109
2.159	22.0	0.111
2.164	23.0	0.106
2.161	24.0	0.109
2.157	25.0	0.113
2.155	26.0	0.115
2.154	27.0	0.116
2.153	28.0	0.117
2.151	29.0	0.119
2.148	30.0	0.122
2.147	31.0	0.123
2.146	32.0	0.124
2.144	33.0	0.126
2.145	34.0	0.125
2.142	35.0	0.128
2.143	36.0	0.127
2.145	37.0	0.125
2.140	38.0	0.130
2.140	39.0	0.130
2.137	40.0	0.133
2.137	41.0	0.133
2.134	42.0	0.136
2.135	43.0	0.135
2.133	44.0	0.137
2.130	45.0	0.140
2.134	46.0	0.136

Water Level Elapsed Time Drawdown

(ft msl)	(min)	(ft)
2.130	47.0	0.140
2.129	48.0	0.141
2.130	49.0	0.140
2.128	50.0	0.142
2.127	51.0	0.143
2.127	52.0	0.143
2.129	53.0	0.141
2.128	54.0	0.142
2.127	55.0	0.143
2.127	56.0	0.143
2.123	57.0	0.147
2.124	58.0	0.146
2.120	59.0	0.150
2.122	60.0	0.148
2.118	61.0	0.152
2.120	62.0	0.150
2.118	63.0	0.152
2.122	64.0	0.148
2.120	65.0	0.150
2.121	66.0	0.149
2.123	67.0	0.147
2.119	68.0	0.151
2.116	69.0	0.154
2.112	70.0	0.158
2.111	71.0	0.159
2.111	72.0	0.159
2.113	73.0	0.157
2.112	74.0	0.158
2.110	75.0	0.160
2.107	76.0	0.163
2.107	77.0	0.163
2.110	78.0	0.160
2.108	79.0	0.162
2.109	80.0	0.161
2.111	81.0	0.159
2.110	82.0	0.160
2.110	83.0	0.160
2.113	84.0	0.157
2.104	85.0	0.166
2.105	86.0	0.165
2.104	87.0	0.166
2.106	88.0	0.164
2.105	89.0	0.165
2.102	90.0	0.168
2.103	91.0	0.167
2.100	92.0	0.170
2.101	93.0	0.169
2.098	94.0	0.172
2.099	95.0	0.171

Water Level Elapsed Time Drawdown

(ft msl)	(min)	(ft)
2.096	96.0	0.174
2.098	97.0	0.172
2.098	98.0	0.172
2.100	99.0	0.170
2.096	100.0	0.174
2.095	101.0	0.175
2.095	102.0	0.175
2.098	103.0	0.172
2.097	104.0	0.173
2.099	105.0	0.171
2.095	106.0	0.175
2.098	107.0	0.172
2.096	108.0	0.174
2.094	109.0	0.176
2.095	110.0	0.175
2.098	111.0	0.172
2.099	112.0	0.171
2.096	113.0	0.174
2.095	114.0	0.175
2.094	115.0	0.176
2.091	116.0	0.179
2.096	117.0	0.174
2.095	118.0	0.175
2.095	119.0	0.175
2.094	120.0	0.176
2.093	121.0	0.177
2.095	122.0	0.175
2.094	123.0	0.176
2.097	124.0	0.173
2.097	125.0	0.173
2.096	126.0	0.174
2.095	127.0	0.175
2.095	128.0	0.175
2.093	129.0	0.177
2.094	130.0	0.176
2.094	131.0	0.176
2.086	132.0	0.184
2.081	133.0	0.189
2.079	134.0	0.191
2.079	135.0	0.191
2.082	136.0	0.188
2.081	137.0	0.189
2.082	138.0	0.188
2.082	139.0	0.188
2.081	140.0	0.189
2.080	141.0	0.190
2.079	142.0	0.191
2.081	143.0	0.189
2.081	144.0	0.189

Water Level Elapsed Time Drawdown

(ft msl)	(min)	(ft)
2.078	145.0	0.192
2.080	146.0	0.190
2.081	147.0	0.189
2.081	148.0	0.189
2.080	149.0	0.190
2.080	150.0	0.190
2.081	151.0	0.189
2.081	152.0	0.189
2.078	153.0	0.192
2.079	154.0	0.191
2.079	155.0	0.191
2.081	156.0	0.189
2.082	157.0	0.188
2.080	158.0	0.190
2.079	159.0	0.191
2.077	160.0	0.193
2.078	161.0	0.192
2.076	162.0	0.194
2.074	163.0	0.196
2.077	164.0	0.193
2.076	165.0	0.194
2.076	166.0	0.194
2.077	167.0	0.193
2.075	168.0	0.195
2.074	169.0	0.196
2.076	170.0	0.194
2.077	171.0	0.193
2.076	172.0	0.194
2.078	173.0	0.192
2.075	174.0	0.195
2.075	175.0	0.195
2.073	176.0	0.197
2.076	177.0	0.194
2.077	178.0	0.193
2.074	179.0	0.196
2.071	180.0	0.199
2.073	181.0	0.197
2.071	182.0	0.199
2.073	183.0	0.197
2.070	184.0	0.200
2.073	185.0	0.197
2.068	186.0	0.202
2.071	187.0	0.199
2.067	188.0	0.203
2.070	189.0	0.200
2.069	190.0	0.201
2.069	191.0	0.201
2.065	192.0	0.205
2.067	193.0	0.203

Water Level Elapsed Time Drawdown

(ft msl)	(min)	(ft)
2.066	194.0	0.204
2.062	195.0	0.208
2.084	196.0	0.186
2.082	197.0	0.188
2.085	198.0	0.185
2.082	199.0	0.188
2.082	200.0	0.188
2.079	201.0	0.191
2.074	202.0	0.196
2.076	203.0	0.194
2.074	204.0	0.196
2.070	205.0	0.200
2.072	206.0	0.198
2.074	207.0	0.196
2.072	208.0	0.198
2.071	209.0	0.199
2.071	210.0	0.199
2.068	211.0	0.202
2.062	212.0	0.208
2.062	213.0	0.208
2.059	214.0	0.211
2.060	215.0	0.210
2.059	216.0	0.211
2.058	217.0	0.212
2.057	218.0	0.213
2.057	219.0	0.213
2.056	220.0	0.214
2.057	221.0	0.213
2.053	222.0	0.217
2.049	223.0	0.221
2.050	224.0	0.220
2.050	225.0	0.220
2.051	226.0	0.219
2.050	227.0	0.220
2.049	228.0	0.221
2.050	229.0	0.220
2.048	230.0	0.222
2.045	231.0	0.225
2.045	232.0	0.225
2.048	233.0	0.222
2.045	234.0	0.225
2.043	235.0	0.227
2.044	236.0	0.226
2.040	237.0	0.230
2.037	238.0	0.233
2.037	239.0	0.233
2.038	240.0	0.232
2.036	241.0	0.234
2.035	242.0	0.235

Water Level Elapsed Time Drawdown

(ft msl)	(min)	(ft)
2.034	243.0	0.236
2.034	244.0	0.236
2.034	245.0	0.236
2.031	246.0	0.239
2.029	247.0	0.241
2.029	248.0	0.241
2.026	249.0	0.244
2.023	250.0	0.247
2.023	251.0	0.247
2.024	252.0	0.246
2.024	253.0	0.246
2.024	254.0	0.246
2.019	255.0	0.251
2.020	256.0	0.250
2.021	257.0	0.249
2.018	258.0	0.252
2.018	259.0	0.252
2.018	260.0	0.252
2.020	261.0	0.250
2.017	262.0	0.253
2.021	263.0	0.249
2.019	264.0	0.251
2.019	265.0	0.251
2.014	266.0	0.256
2.015	267.0	0.255
2.014	268.0	0.256
2.018	269.0	0.252
2.019	270.0	0.251
2.018	271.0	0.252
2.024	272.0	0.246
2.020	273.0	0.250
2.020	274.0	0.250
2.021	275.0	0.249
2.021	276.0	0.249
2.020	277.0	0.250
2.020	278.0	0.250
2.022	279.0	0.248
2.023	280.0	0.247
2.022	281.0	0.248
2.023	282.0	0.247
2.021	283.0	0.249
2.023	284.0	0.247
2.024	285.0	0.246
2.022	286.0	0.248
2.022	287.0	0.248
2.021	288.0	0.249
2.020	289.0	0.250
2.020	290.0	0.250
2.019	291.0	0.251

Water Level Elapsed Time Drawdown

(ft msl)	(min)	(ft)
2.020	292.0	0.250
2.020	293.0	0.250
2.021	294.0	0.249
2.023	295.0	0.247
2.021	296.0	0.249
2.020	297.0	0.250
2.022	298.0	0.248
2.020	299.0	0.250
2.021	300.0	0.249
2.021	301.0	0.249
2.020	302.0	0.250
2.022	303.0	0.248
2.020	304.0	0.250
2.022	305.0	0.248
2.021	306.0	0.249
2.021	307.0	0.249
2.023	308.0	0.247
2.020	309.0	0.250
2.022	310.0	0.248
2.021	311.0	0.249
2.020	312.0	0.250
2.021	313.0	0.249
2.021	314.0	0.249
2.021	315.0	0.249
2.019	316.0	0.251
2.019	317.0	0.251
2.023	318.0	0.247
2.021	319.0	0.249
2.023	320.0	0.247
2.022	321.0	0.248
2.022	322.0	0.248
2.018	323.0	0.252
2.020	324.0	0.250
2.021	325.0	0.249
2.023	326.0	0.247
2.019	327.0	0.251
2.021	328.0	0.249
2.022	329.0	0.248
2.023	330.0	0.247
2.022	331.0	0.248
2.024	332.0	0.246
2.018	333.0	0.252
2.018	334.0	0.252
2.017	335.0	0.253
2.017	336.0	0.253
2.017	337.0	0.253
2.024	338.0	0.246
2.022	339.0	0.248
2.020	340.0	0.250

Water Level	Elapsed Time	Drawdown
(ft msl)	(min)	(ft)
2.021	341.0	0.249
2.019	342.0	0.251
2.020	343.0	0.250
2.020	344.0	0.250
2.019	345.0	0.251
2.020	346.0	0.250
2.018	347.0	0.252
2.019	348.0	0.251
2.017	349.0	0.253
2.018	350.0	0.252
2.021	351.0	0.249
2.020	352.0	0.250
2.016	353.0	0.254
2.015	354.0	0.255
2.017	355.0	0.253
2.013	356.0	0.257
2.010	357.0	0.260
2.012	358.0	0.258
2.010	359.0	0.260
2.012	360.0	0.258
2.009	361.0	0.261
2.012	362.0	0.258
2.010	363.0	0.260
2.011	364.0	0.259
2.008	365.0	0.262
2.009	366.0	0.261
2.008	367.0	0.262
2.006	368.0	0.264
2.007	369.0	0.263
2.008	370.0	0.262
2.007	371.0	0.263
2.006	372.0	0.264
2.002	373.0	0.268
2.006	374.0	0.264
2.007	375.0	0.263
2.003	376.0	0.267
2.004	377.0	0.266
2.004	378.0	0.266
2.006	379.0	0.264
2.003	380.0	0.267
2.011	381.0	0.259
2.003	382.0	0.267
2.002	383.0	0.268
2.003	384.0	0.267
2.002	385.0	0.268

Table A-2
Corrected Water Levels for Tidal Influence at MW01D

Time	Tide	Lagged Tide
0	5/17/2006 9:00	-0.660
1	5/17/2006 9:01	-0.652
2	5/17/2006 9:02	-0.643
3	5/17/2006 9:03	-0.635
4	5/17/2006 9:04	-0.627
5	5/17/2006 9:05	-0.618
6	5/17/2006 9:06	-0.610
7	5/17/2006 9:07	-0.602
8	5/17/2006 9:08	-0.593
9	5/17/2006 9:09	-0.585
10	5/17/2006 9:10	-0.577
11	5/17/2006 9:11	-0.568
12	5/17/2006 9:12	-0.560
13	5/17/2006 9:13	-0.555
14	5/17/2006 9:14	-0.550
15	5/17/2006 9:15	-0.545
16	5/17/2006 9:16	-0.540
17	5/17/2006 9:17	-0.535
18	5/17/2006 9:18	-0.530
19	5/17/2006 9:19	-0.522
20	5/17/2006 9:20	-0.513
21	5/17/2006 9:21	-0.505
22	5/17/2006 9:22	-0.497
23	5/17/2006 9:23	-0.488
24	5/17/2006 9:24	-0.480
25	5/17/2006 9:25	-0.472
26	5/17/2006 9:26	-0.463
27	5/17/2006 9:27	-0.455
28	5/17/2006 9:28	-0.447
29	5/17/2006 9:29	-0.438
30	5/17/2006 9:30	-0.430
31	5/17/2006 9:31	-0.422
32	5/17/2006 9:32	-0.413
33	5/17/2006 9:33	-0.405
34	5/17/2006 9:34	-0.397
35	5/17/2006 9:35	-0.388
36	5/17/2006 9:36	-0.380
37	5/17/2006 9:37	-0.373
38	5/17/2006 9:38	-0.367
39	5/17/2006 9:39	-0.360
40	5/17/2006 9:40	-0.353
41	5/17/2006 9:41	-0.347
42	5/17/2006 9:42	-0.340
43	5/17/2006 9:43	-0.333
44	5/17/2006 9:44	-0.327
45	5/17/2006 9:45	-0.320
46	5/17/2006 9:46	-0.313
47	5/17/2006 9:47	-0.307

	Time	Tide	Lagged Tide	MW01D	Elapsed	Corrected
				Level	Time	MW01D
48	5/17/2006 9:48	-0.300				
49	5/17/2006 9:49	-0.290				
50	5/17/2006 9:50	-0.280				
51	5/17/2006 9:51	-0.270				
52	5/17/2006 9:52	-0.260				
53	5/17/2006 9:53	-0.250				
54	5/17/2006 9:54	-0.240				
55	5/17/2006 9:55	-0.233				
56	5/17/2006 9:56	-0.227				
57	5/17/2006 9:57	-0.220				
58	5/17/2006 9:58	-0.213				
59	5/17/2006 9:59	-0.207				
60	5/17/2006 10:00	-0.200				
61	5/17/2006 10:01	-0.188				
62	5/17/2006 10:02	-0.177				
63	5/17/2006 10:03	-0.165				
64	5/17/2006 10:04	-0.153				
65	5/17/2006 10:05	-0.142				
66	5/17/2006 10:06	-0.130				
67	5/17/2006 10:07	-0.122				
68	5/17/2006 10:08	-0.113				
69	5/17/2006 10:09	-0.105				
70	5/17/2006 10:10	-0.097				
71	5/17/2006 10:11	-0.088				
72	5/17/2006 10:12	-0.080				
73	5/17/2006 10:13	-0.070	-0.347	2.270	0.0	2.270
74	5/17/2006 10:14	-0.060	-0.340	2.273	1.0	2.272
75	5/17/2006 10:15	-0.050	-0.333	2.272	2.0	2.271
76	5/17/2006 10:16	-0.040	-0.327	2.266	3.0	2.263
77	5/17/2006 10:17	-0.030	-0.320	2.254	4.0	2.250
78	5/17/2006 10:18	-0.020	-0.313	2.244	5.0	2.239
79	5/17/2006 10:19	-0.008	-0.307	2.234	6.0	2.229
80	5/17/2006 10:20	0.003	-0.300	2.226	7.0	2.219
81	5/17/2006 10:21	0.015	-0.290	2.219	8.0	2.211
82	5/17/2006 10:22	0.027	-0.280	2.214	9.0	2.205
83	5/17/2006 10:23	0.038	-0.270	2.211	10.0	2.201
84	5/17/2006 10:24	0.050	-0.260	2.208	11.0	2.197
85	5/17/2006 10:25	0.060	-0.250	2.204	12.0	2.191
86	5/17/2006 10:26	0.070	-0.240	2.202	13.0	2.187
87	5/17/2006 10:27	0.080	-0.233	2.197	14.0	2.182
88	5/17/2006 10:28	0.090	-0.227	2.193	15.0	2.177
89	5/17/2006 10:29	0.100	-0.220	2.191	16.0	2.174
90	5/17/2006 10:30	0.110	-0.213	2.190	17.0	2.172
91	5/17/2006 10:31	0.122	-0.207	2.186	18.0	2.167
92	5/17/2006 10:32	0.133	-0.200	2.185	19.0	2.165
93	5/17/2006 10:33	0.145	-0.188	2.183	20.0	2.162
94	5/17/2006 10:34	0.157	-0.177	2.184	21.0	2.161
95	5/17/2006 10:35	0.168	-0.165	2.184	22.0	2.159
96	5/17/2006 10:36	0.180	-0.153	2.190	23.0	2.164
97	5/17/2006 10:37	0.192	-0.142	2.188	24.0	2.161
98	5/17/2006 10:38	0.203	-0.130	2.186	25.0	2.157

					Elapsed	Corrected
	Time	Tide	Lagged Tide	MW01D Level	Time	MW01D
						Level
99	5/17/2006 10:39	0.215	-0.122	2.186	26.0	2.155
100	5/17/2006 10:40	0.227	-0.113	2.186	27.0	2.154
101	5/17/2006 10:41	0.238	-0.105	2.186	28.0	2.153
102	5/17/2006 10:42	0.250	-0.097	2.184	29.0	2.151
103	5/17/2006 10:43	0.260	-0.088	2.182	30.0	2.148
104	5/17/2006 10:44	0.270	-0.080	2.183	31.0	2.147
105	5/17/2006 10:45	0.280	-0.070	2.184	32.0	2.146
106	5/17/2006 10:46	0.290	-0.060	2.183	33.0	2.144
107	5/17/2006 10:47	0.300	-0.050	2.185	34.0	2.145
108	5/17/2006 10:48	0.310	-0.040	2.184	35.0	2.142
109	5/17/2006 10:49	0.322	-0.030	2.186	36.0	2.143
110	5/17/2006 10:50	0.333	-0.020	2.189	37.0	2.145
111	5/17/2006 10:51	0.345	-0.008	2.186	38.0	2.140
112	5/17/2006 10:52	0.357	0.003	2.187	39.0	2.140
113	5/17/2006 10:53	0.368	0.015	2.186	40.0	2.137
114	5/17/2006 10:54	0.380	0.027	2.188	41.0	2.137
115	5/17/2006 10:55	0.392	0.038	2.186	42.0	2.134
116	5/17/2006 10:56	0.403	0.050	2.188	43.0	2.135
117	5/17/2006 10:57	0.415	0.060	2.188	44.0	2.133
118	5/17/2006 10:58	0.427	0.070	2.187	45.0	2.130
119	5/17/2006 10:59	0.438	0.080	2.192	46.0	2.134
120	5/17/2006 11:00	0.450	0.090	2.189	47.0	2.130
121	5/17/2006 11:01	0.460	0.100	2.189	48.0	2.129
122	5/17/2006 11:02	0.470	0.110	2.191	49.0	2.130
123	5/17/2006 11:03	0.480	0.122	2.192	50.0	2.128
124	5/17/2006 11:04	0.490	0.133	2.192	51.0	2.127
125	5/17/2006 11:05	0.500	0.145	2.193	52.0	2.127
126	5/17/2006 11:06	0.510	0.157	2.197	53.0	2.129
127	5/17/2006 11:07	0.522	0.168	2.198	54.0	2.128
128	5/17/2006 11:08	0.533	0.180	2.198	55.0	2.127
129	5/17/2006 11:09	0.545	0.192	2.200	56.0	2.127
130	5/17/2006 11:10	0.557	0.203	2.197	57.0	2.123
131	5/17/2006 11:11	0.568	0.215	2.200	58.0	2.124
132	5/17/2006 11:12	0.580	0.227	2.198	59.0	2.120
133	5/17/2006 11:13	0.590	0.238	2.201	60.0	2.122
134	5/17/2006 11:14	0.600	0.250	2.199	61.0	2.118
135	5/17/2006 11:15	0.610	0.260	2.202	62.0	2.120
136	5/17/2006 11:16	0.620	0.270	2.201	63.0	2.118
137	5/17/2006 11:17	0.630	0.280	2.207	64.0	2.122
138	5/17/2006 11:18	0.640	0.290	2.206	65.0	2.120
139	5/17/2006 11:19	0.652	0.300	2.208	66.0	2.121
140	5/17/2006 11:20	0.663	0.310	2.211	67.0	2.123
141	5/17/2006 11:21	0.675	0.322	2.209	68.0	2.119
142	5/17/2006 11:22	0.687	0.333	2.208	69.0	2.116
143	5/17/2006 11:23	0.698	0.345	2.206	70.0	2.112
144	5/17/2006 11:24	0.710	0.357	2.206	71.0	2.111
145	5/17/2006 11:25	0.722	0.368	2.207	72.0	2.111
146	5/17/2006 11:26	0.733	0.380	2.211	73.0	2.113
147	5/17/2006 11:27	0.745	0.392	2.212	74.0	2.112

					Elapsed	Corrected MW01D Level
	Time	Tide	Lagged Tide	MW01D Level	Time	
148	5/17/2006 11:28	0.757	0.403	2.211	75.0	2.110
149	5/17/2006 11:29	0.768	0.415	2.210	76.0	2.107
150	5/17/2006 11:30	0.780	0.427	2.211	77.0	2.107
151	5/17/2006 11:31	0.788	0.438	2.216	78.0	2.110
152	5/17/2006 11:32	0.797	0.450	2.216	79.0	2.108
153	5/17/2006 11:33	0.805	0.460	2.218	80.0	2.109
154	5/17/2006 11:34	0.813	0.470	2.221	81.0	2.111
155	5/17/2006 11:35	0.822	0.480	2.221	82.0	2.110
156	5/17/2006 11:36	0.830	0.490	2.223	83.0	2.110
157	5/17/2006 11:37	0.838	0.500	2.228	84.0	2.113
158	5/17/2006 11:38	0.847	0.510	2.220	85.0	2.104
159	5/17/2006 11:39	0.855	0.522	2.222	86.0	2.105
160	5/17/2006 11:40	0.863	0.533	2.223	87.0	2.104
161	5/17/2006 11:41	0.872	0.545	2.226	88.0	2.106
162	5/17/2006 11:42	0.880	0.557	2.227	89.0	2.105
163	5/17/2006 11:43	0.888	0.568	2.225	90.0	2.102
164	5/17/2006 11:44	0.897	0.580	2.228	91.0	2.103
165	5/17/2006 11:45	0.905	0.590	2.226	92.0	2.100
166	5/17/2006 11:46	0.913	0.600	2.229	93.0	2.101
167	5/17/2006 11:47	0.922	0.610	2.227	94.0	2.098
168	5/17/2006 11:48	0.930	0.620	2.230	95.0	2.099
169	5/17/2006 11:49	0.940	0.630	2.228	96.0	2.096
170	5/17/2006 11:50	0.950	0.640	2.232	97.0	2.098
171	5/17/2006 11:51	0.960	0.652	2.233	98.0	2.098
172	5/17/2006 11:52	0.970	0.663	2.237	99.0	2.100
173	5/17/2006 11:53	0.980	0.675	2.234	100.0	2.096
174	5/17/2006 11:54	0.990	0.687	2.234	101.0	2.095
175	5/17/2006 11:55	0.998	0.698	2.236	102.0	2.095
176	5/17/2006 11:56	1.007	0.710	2.240	103.0	2.098
177	5/17/2006 11:57	1.015	0.722	2.241	104.0	2.097
178	5/17/2006 11:58	1.023	0.733	2.244	105.0	2.099
179	5/17/2006 11:59	1.032	0.745	2.243	106.0	2.095
180	5/17/2006 12:00	1.040	0.757	2.247	107.0	2.098
181	5/17/2006 12:01	1.047	0.768	2.247	108.0	2.096
182	5/17/2006 12:02	1.053	0.780	2.246	109.0	2.094
183	5/17/2006 12:03	1.060	0.788	2.249	110.0	2.095
184	5/17/2006 12:04	1.067	0.797	2.252	111.0	2.098
185	5/17/2006 12:05	1.073	0.805	2.255	112.0	2.099
186	5/17/2006 12:06	1.080	0.813	2.253	113.0	2.096
187	5/17/2006 12:07	1.085	0.822	2.253	114.0	2.095
188	5/17/2006 12:08	1.090	0.830	2.253	115.0	2.094
189	5/17/2006 12:09	1.095	0.838	2.251	116.0	2.091
190	5/17/2006 12:10	1.100	0.847	2.257	117.0	2.096
191	5/17/2006 12:11	1.105	0.855	2.257	118.0	2.095
192	5/17/2006 12:12	1.110	0.863	2.258	119.0	2.095
193	5/17/2006 12:13	1.117	0.872	2.258	120.0	2.094
194	5/17/2006 12:14	1.123	0.880	2.259	121.0	2.093
195	5/17/2006 12:15	1.130	0.888	2.261	122.0	2.095
196	5/17/2006 12:16	1.137	0.897	2.262	123.0	2.094

					Elapsed	Corrected MW01D Level
Time	Tide	Lagged Tide	MW01D Level	Time		
197	5/17/2006 12:17	1.143	0.905	2.266	124.0	2.097
198	5/17/2006 12:18	1.150	0.913	2.267	125.0	2.097
199	5/17/2006 12:19	1.155	0.922	2.267	126.0	2.096
200	5/17/2006 12:20	1.160	0.930	2.268	127.0	2.095
201	5/17/2006 12:21	1.165	0.940	2.269	128.0	2.095
202	5/17/2006 12:22	1.170	0.950	2.269	129.0	2.093
203	5/17/2006 12:23	1.175	0.960	2.270	130.0	2.094
204	5/17/2006 12:24	1.180	0.970	2.272	131.0	2.094
205	5/17/2006 12:25	1.185	0.980	2.265	132.0	2.086
206	5/17/2006 12:26	1.190	0.990	2.262	133.0	2.081
207	5/17/2006 12:27	1.195	0.998	2.261	134.0	2.079
208	5/17/2006 12:28	1.200	1.007	2.262	135.0	2.079
209	5/17/2006 12:29	1.205	1.015	2.266	136.0	2.082
210	5/17/2006 12:30	1.210	1.023	2.266	137.0	2.081
211	5/17/2006 12:31	1.215	1.032	2.269	138.0	2.082
212	5/17/2006 12:32	1.220	1.040	2.269	139.0	2.082
213	5/17/2006 12:33	1.225	1.047	2.269	140.0	2.081
214	5/17/2006 12:34	1.230	1.053	2.269	141.0	2.080
215	5/17/2006 12:35	1.235	1.060	2.269	142.0	2.079
216	5/17/2006 12:36	1.240	1.067	2.272	143.0	2.081
217	5/17/2006 12:37	1.243	1.073	2.273	144.0	2.081
218	5/17/2006 12:38	1.247	1.080	2.271	145.0	2.078
219	5/17/2006 12:39	1.250	1.085	2.273	146.0	2.080
220	5/17/2006 12:40	1.253	1.090	2.275	147.0	2.081
221	5/17/2006 12:41	1.257	1.095	2.276	148.0	2.081
222	5/17/2006 12:42	1.260	1.100	2.276	149.0	2.080
223	5/17/2006 12:43	1.263	1.105	2.276	150.0	2.080
224	5/17/2006 12:44	1.267	1.110	2.278	151.0	2.081
225	5/17/2006 12:45	1.270	1.117	2.278	152.0	2.081
226	5/17/2006 12:46	1.273	1.123	2.277	153.0	2.078
227	5/17/2006 12:47	1.277	1.130	2.279	154.0	2.079
228	5/17/2006 12:48	1.280	1.137	2.279	155.0	2.079
229	5/17/2006 12:49	1.282	1.143	2.282	156.0	2.081
230	5/17/2006 12:50	1.283	1.150	2.284	157.0	2.082
231	5/17/2006 12:51	1.285	1.155	2.283	158.0	2.080
232	5/17/2006 12:52	1.287	1.160	2.283	159.0	2.079
233	5/17/2006 12:53	1.288	1.165	2.281	160.0	2.077
234	5/17/2006 12:54	1.290	1.170	2.283	161.0	2.078
235	5/17/2006 12:55	1.292	1.175	2.281	162.0	2.076
236	5/17/2006 12:56	1.293	1.180	2.280	163.0	2.074
237	5/17/2006 12:57	1.295	1.185	2.284	164.0	2.077
238	5/17/2006 12:58	1.297	1.190	2.284	165.0	2.076
239	5/17/2006 12:59	1.298	1.195	2.284	166.0	2.076
240	5/17/2006 13:00	1.300	1.200	2.286	167.0	2.077
241	5/17/2006 13:01	1.300	1.205	2.284	168.0	2.075
242	5/17/2006 13:02	1.300	1.210	2.285	169.0	2.074
243	5/17/2006 13:03	1.300	1.215	2.287	170.0	2.076
244	5/17/2006 13:04	1.300	1.220	2.288	171.0	2.077
245	5/17/2006 13:05	1.300	1.225	2.288	172.0	2.076

					Elapsed	Corrected MW01D Level
Time	Tide	Lagged Tide	MW01D Level	Time		
246	5/17/2006 13:06	1.300	1.230	2.290	173.0	2.078
247	5/17/2006 13:07	1.302	1.235	2.289	174.0	2.075
248	5/17/2006 13:08	1.303	1.240	2.289	175.0	2.075
249	5/17/2006 13:09	1.305	1.243	2.288	176.0	2.073
250	5/17/2006 13:10	1.307	1.247	2.291	177.0	2.076
251	5/17/2006 13:11	1.308	1.250	2.292	178.0	2.077
252	5/17/2006 13:12	1.310	1.253	2.290	179.0	2.074
253	5/17/2006 13:13	1.310	1.257	2.288	180.0	2.071
254	5/17/2006 13:14	1.310	1.260	2.290	181.0	2.073
255	5/17/2006 13:15	1.310	1.263	2.288	182.0	2.071
256	5/17/2006 13:16	1.310	1.267	2.290	183.0	2.073
257	5/17/2006 13:17	1.310	1.270	2.289	184.0	2.070
258	5/17/2006 13:18	1.310	1.273	2.292	185.0	2.073
259	5/17/2006 13:19	1.308	1.277	2.287	186.0	2.068
260	5/17/2006 13:20	1.307	1.280	2.290	187.0	2.071
261	5/17/2006 13:21	1.305	1.282	2.287	188.0	2.067
262	5/17/2006 13:22	1.303	1.283	2.290	189.0	2.070
263	5/17/2006 13:23	1.302	1.285	2.290	190.0	2.069
264	5/17/2006 13:24	1.300	1.287	2.290	191.0	2.069
265	5/17/2006 13:25	1.297	1.288	2.285	192.0	2.065
266	5/17/2006 13:26	1.293	1.290	2.288	193.0	2.067
267	5/17/2006 13:27	1.290	1.292	2.287	194.0	2.066
268	5/17/2006 13:28	1.287	1.293	2.284	195.0	2.062
269	5/17/2006 13:29	1.283	1.295	2.305	196.0	2.084
270	5/17/2006 13:30	1.280	1.297	2.304	197.0	2.082
271	5/17/2006 13:31	1.277	1.298	2.307	198.0	2.085
272	5/17/2006 13:32	1.273	1.300	2.305	199.0	2.082
273	5/17/2006 13:33	1.270	1.300	2.304	200.0	2.082
274	5/17/2006 13:34	1.267	1.300	2.302	201.0	2.079
275	5/17/2006 13:35	1.263	1.300	2.296	202.0	2.074
276	5/17/2006 13:36	1.260	1.300	2.299	203.0	2.076
277	5/17/2006 13:37	1.255	1.300	2.296	204.0	2.074
278	5/17/2006 13:38	1.250	1.300	2.293	205.0	2.070
279	5/17/2006 13:39	1.245	1.302	2.295	206.0	2.072
280	5/17/2006 13:40	1.240	1.303	2.297	207.0	2.074
281	5/17/2006 13:41	1.235	1.305	2.295	208.0	2.072
282	5/17/2006 13:42	1.230	1.307	2.295	209.0	2.071
283	5/17/2006 13:43	1.228	1.308	2.294	210.0	2.071
284	5/17/2006 13:44	1.227	1.310	2.291	211.0	2.068
285	5/17/2006 13:45	1.225	1.310	2.286	212.0	2.062
286	5/17/2006 13:46	1.223	1.310	2.285	213.0	2.062
287	5/17/2006 13:47	1.222	1.310	2.283	214.0	2.059
288	5/17/2006 13:48	1.220	1.310	2.283	215.0	2.060
289	5/17/2006 13:49	1.213	1.310	2.283	216.0	2.059
290	5/17/2006 13:50	1.207	1.310	2.281	217.0	2.058
291	5/17/2006 13:51	1.200	1.308	2.281	218.0	2.057
292	5/17/2006 13:52	1.193	1.307	2.280	219.0	2.057
293	5/17/2006 13:53	1.187	1.305	2.279	220.0	2.056
294	5/17/2006 13:54	1.180	1.303	2.280	221.0	2.057

					Elapsed	Corrected MW01D Level
Time	Tide	Lagged Tide	MW01D Level	Time		
295	5/17/2006 13:55	1.175	1.302	2.276	222.0	2.053
296	5/17/2006 13:56	1.170	1.300	2.271	223.0	2.049
297	5/17/2006 13:57	1.165	1.297	2.272	224.0	2.050
298	5/17/2006 13:58	1.160	1.293	2.271	225.0	2.050
299	5/17/2006 13:59	1.155	1.290	2.272	226.0	2.051
300	5/17/2006 14:00	1.150	1.287	2.271	227.0	2.050
301	5/17/2006 14:01	1.145	1.283	2.269	228.0	2.049
302	5/17/2006 14:02	1.140	1.280	2.270	229.0	2.050
303	5/17/2006 14:03	1.135	1.277	2.267	230.0	2.048
304	5/17/2006 14:04	1.130	1.273	2.264	231.0	2.045
305	5/17/2006 14:05	1.125	1.270	2.263	232.0	2.045
306	5/17/2006 14:06	1.120	1.267	2.266	233.0	2.048
307	5/17/2006 14:07	1.112	1.263	2.262	234.0	2.045
308	5/17/2006 14:08	1.103	1.260	2.260	235.0	2.043
309	5/17/2006 14:09	1.095	1.255	2.260	236.0	2.044
310	5/17/2006 14:10	1.087	1.250	2.256	237.0	2.040
311	5/17/2006 14:11	1.078	1.245	2.252	238.0	2.037
312	5/17/2006 14:12	1.070	1.240	2.252	239.0	2.037
313	5/17/2006 14:13	1.063	1.235	2.251	240.0	2.038
314	5/17/2006 14:14	1.057	1.230	2.249	241.0	2.036
315	5/17/2006 14:15	1.050	1.228	2.248	242.0	2.035
316	5/17/2006 14:16	1.043	1.227	2.247	243.0	2.034
317	5/17/2006 14:17	1.037	1.225	2.246	244.0	2.034
318	5/17/2006 14:18	1.030	1.223	2.246	245.0	2.034
319	5/17/2006 14:19	1.022	1.222	2.243	246.0	2.031
320	5/17/2006 14:20	1.013	1.220	2.240	247.0	2.029
321	5/17/2006 14:21	1.005	1.213	2.240	248.0	2.029
322	5/17/2006 14:22	0.997	1.207	2.235	249.0	2.026
323	5/17/2006 14:23	0.988	1.200	2.232	250.0	2.023
324	5/17/2006 14:24	0.980	1.193	2.231	251.0	2.023
325	5/17/2006 14:25	0.972	1.187	2.231	252.0	2.024
326	5/17/2006 14:26	0.963	1.180	2.230	253.0	2.024
327	5/17/2006 14:27	0.955	1.175	2.230	254.0	2.024
328	5/17/2006 14:28	0.947	1.170	2.224	255.0	2.019
329	5/17/2006 14:29	0.938	1.165	2.224	256.0	2.020
330	5/17/2006 14:30	0.930	1.160	2.224	257.0	2.021
331	5/17/2006 14:31	0.922	1.155	2.221	258.0	2.018
332	5/17/2006 14:32	0.913	1.150	2.220	259.0	2.018
333	5/17/2006 14:33	0.905	1.145	2.220	260.0	2.018
334	5/17/2006 14:34	0.897	1.140	2.221	261.0	2.020
335	5/17/2006 14:35	0.888	1.135	2.218	262.0	2.017
336	5/17/2006 14:36	0.880	1.130	2.220	263.0	2.021
337	5/17/2006 14:37	0.872	1.125	2.217	264.0	2.019
338	5/17/2006 14:38	0.863	1.120	2.217	265.0	2.019
339	5/17/2006 14:39	0.855	1.112	2.211	266.0	2.014
340	5/17/2006 14:40	0.847	1.103	2.211	267.0	2.015
341	5/17/2006 14:41	0.838	1.095	2.209	268.0	2.014
342	5/17/2006 14:42	0.830	1.087	2.211	269.0	2.018
343	5/17/2006 14:43	0.820	1.078	2.212	270.0	2.019

					Elapsed	Corrected
	Time	Tide	Lagged Tide	MW01D Level	Time	MW01D
						Level
344	5/17/2006 14:44	0.810	1.070	2.210	271.0	2.018
345	5/17/2006 14:45	0.800	1.063	2.214	272.0	2.024
346	5/17/2006 14:46	0.790	1.057	2.209	273.0	2.020
347	5/17/2006 14:47	0.780	1.050	2.208	274.0	2.020
348	5/17/2006 14:48	0.770	1.043	2.209	275.0	2.021
349	5/17/2006 14:49	0.760	1.037	2.208	276.0	2.021
350	5/17/2006 14:50	0.750	1.030	2.206	277.0	2.020
351	5/17/2006 14:51	0.740	1.022	2.204	278.0	2.020
352	5/17/2006 14:52	0.730	1.013	2.206	279.0	2.022
353	5/17/2006 14:53	0.720	1.005	2.206	280.0	2.023
354	5/17/2006 14:54	0.710	0.997	2.203	281.0	2.022
355	5/17/2006 14:55	0.700	0.988	2.203	282.0	2.023
356	5/17/2006 14:56	0.690	0.980	2.200	283.0	2.021
357	5/17/2006 14:57	0.680	0.972	2.201	284.0	2.023
358	5/17/2006 14:58	0.670	0.963	2.201	285.0	2.024
359	5/17/2006 14:59	0.660	0.955	2.198	286.0	2.022
360	5/17/2006 15:00	0.650	0.947	2.196	287.0	2.022
361	5/17/2006 15:01	0.640	0.938	2.195	288.0	2.021
362	5/17/2006 15:02	0.630	0.930	2.193	289.0	2.020
363	5/17/2006 15:03	0.620	0.922	2.191	290.0	2.020
364	5/17/2006 15:04	0.610	0.913	2.189	291.0	2.019
365	5/17/2006 15:05	0.600	0.905	2.189	292.0	2.020
366	5/17/2006 15:06	0.590	0.897	2.188	293.0	2.020
367	5/17/2006 15:07	0.582	0.888	2.188	294.0	2.021
368	5/17/2006 15:08	0.573	0.880	2.188	295.0	2.023
369	5/17/2006 15:09	0.565	0.872	2.185	296.0	2.021
370	5/17/2006 15:10	0.557	0.863	2.184	297.0	2.020
371	5/17/2006 15:11	0.548	0.855	2.184	298.0	2.022
372	5/17/2006 15:12	0.540	0.847	2.181	299.0	2.020
373	5/17/2006 15:13	0.528	0.838	2.181	300.0	2.021
374	5/17/2006 15:14	0.517	0.830	2.180	301.0	2.021
375	5/17/2006 15:15	0.505	0.820	2.178	302.0	2.020
376	5/17/2006 15:16	0.493	0.810	2.178	303.0	2.022
377	5/17/2006 15:17	0.482	0.800	2.175	304.0	2.020
378	5/17/2006 15:18	0.470	0.790	2.175	305.0	2.022
379	5/17/2006 15:19	0.460	0.780	2.174	306.0	2.021
380	5/17/2006 15:20	0.450	0.770	2.172	307.0	2.021
381	5/17/2006 15:21	0.440	0.760	2.172	308.0	2.023
382	5/17/2006 15:22	0.430	0.750	2.168	309.0	2.020
383	5/17/2006 15:23	0.420	0.740	2.169	310.0	2.022
384	5/17/2006 15:24	0.410	0.730	2.167	311.0	2.021
385	5/17/2006 15:25	0.402	0.720	2.164	312.0	2.020
386	5/17/2006 15:26	0.393	0.710	2.164	313.0	2.021
387	5/17/2006 15:27	0.385	0.700	2.162	314.0	2.021
388	5/17/2006 15:28	0.377	0.690	2.161	315.0	2.021
389	5/17/2006 15:29	0.368	0.680	2.158	316.0	2.019
390	5/17/2006 15:30	0.360	0.670	2.156	317.0	2.019
391	5/17/2006 15:31	0.352	0.660	2.159	318.0	2.023
392	5/17/2006 15:32	0.343	0.650	2.156	319.0	2.021

					Elapsed	Corrected MW01D Level
Time	Tide	Lagged Tide	MW01D Level	Time		
393	5/17/2006 15:33	0.335	0.640	2.156	320.0	2.023
394	5/17/2006 15:34	0.327	0.630	2.154	321.0	2.022
395	5/17/2006 15:35	0.318	0.620	2.152	322.0	2.022
396	5/17/2006 15:36	0.310	0.610	2.147	323.0	2.018
397	5/17/2006 15:37	0.298	0.600	2.148	324.0	2.020
398	5/17/2006 15:38	0.287	0.590	2.148	325.0	2.021
399	5/17/2006 15:39	0.275	0.582	2.148	326.0	2.023
400	5/17/2006 15:40	0.263	0.573	2.143	327.0	2.019
401	5/17/2006 15:41	0.252	0.565	2.145	328.0	2.021
402	5/17/2006 15:42	0.240	0.557	2.144	329.0	2.022
403	5/17/2006 15:43	0.232	0.548	2.144	330.0	2.023
404	5/17/2006 15:44	0.223	0.540	2.142	331.0	2.022
405	5/17/2006 15:45	0.215	0.528	2.142	332.0	2.024
406	5/17/2006 15:46	0.207	0.517	2.135	333.0	2.018
407	5/17/2006 15:47	0.198	0.505	2.133	334.0	2.018
408	5/17/2006 15:48	0.190	0.493	2.130	335.0	2.017
409	5/17/2006 15:49	0.182	0.482	2.129	336.0	2.017
410	5/17/2006 15:50	0.173	0.470	2.128	337.0	2.017
411	5/17/2006 15:51	0.165	0.460	2.133	338.0	2.024
412	5/17/2006 15:52	0.157	0.450	2.130	339.0	2.022
413	5/17/2006 15:53	0.148	0.440	2.126	340.0	2.020
414	5/17/2006 15:54	0.140	0.430	2.126	341.0	2.021
415	5/17/2006 15:55	0.130	0.420	2.122	342.0	2.019
416	5/17/2006 15:56	0.120	0.410	2.122	343.0	2.020
417	5/17/2006 15:57	0.110	0.402	2.121	344.0	2.020
418	5/17/2006 15:58	0.100	0.393	2.119	345.0	2.019
419	5/17/2006 15:59	0.090	0.385	2.119	346.0	2.020
420	5/17/2006 16:00	0.080	0.377	2.116	347.0	2.018
421	5/17/2006 16:01	0.073	0.368	2.115	348.0	2.019
422	5/17/2006 16:02	0.067	0.360	2.112	349.0	2.017
423	5/17/2006 16:03	0.060	0.352	2.112	350.0	2.018
424	5/17/2006 16:04	0.053	0.343	2.114	351.0	2.021
425	5/17/2006 16:05	0.047	0.335	2.112	352.0	2.020
426	5/17/2006 16:06	0.040	0.327	2.107	353.0	2.016
427	5/17/2006 16:07	0.028	0.318	2.104	354.0	2.015
428	5/17/2006 16:08	0.017	0.310	2.105	355.0	2.017
429	5/17/2006 16:09	0.005	0.298	2.100	356.0	2.013
430	5/17/2006 16:10	-0.007	0.287	2.096	357.0	2.010
431	5/17/2006 16:11	-0.018	0.275	2.096	358.0	2.012
432	5/17/2006 16:12	-0.030	0.263	2.093	359.0	2.010
433	5/17/2006 16:13	-0.040	0.252	2.092	360.0	2.012
434	5/17/2006 16:14	-0.050	0.240	2.088	361.0	2.009
435	5/17/2006 16:15	-0.060	0.232	2.090	362.0	2.012
436	5/17/2006 16:16	-0.070	0.223	2.087	363.0	2.010
437	5/17/2006 16:17	-0.080	0.215	2.087	364.0	2.011
438	5/17/2006 16:18	-0.090	0.207	2.083	365.0	2.008
439	5/17/2006 16:19	-0.095	0.198	2.082	366.0	2.009
440	5/17/2006 16:20	-0.100	0.190	2.080	367.0	2.008
441	5/17/2006 16:21	-0.105	0.182	2.077	368.0	2.006

					Elapsed	Corrected
	Time	Tide	Lagged Tide	MW01D Level	Time	MW01D
						Level
442	5/17/2006 16:22	-0.110	0.173	2.077	369.0	2.007
443	5/17/2006 16:23	-0.115	0.165	2.077	370.0	2.008
444	5/17/2006 16:24	-0.120	0.157	2.076	371.0	2.007
445	5/17/2006 16:25	-0.130	0.148	2.072	372.0	2.006
446	5/17/2006 16:26	-0.140	0.140	2.068	373.0	2.002
447	5/17/2006 16:27	-0.150	0.130	2.070	374.0	2.006
448	5/17/2006 16:28	-0.160	0.120	2.070	375.0	2.007
449	5/17/2006 16:29	-0.170	0.110	2.065	376.0	2.003
450	5/17/2006 16:30	-0.180	0.100	2.065	377.0	2.004
451	5/17/2006 16:31	-0.190	0.090	2.063	378.0	2.004
452	5/17/2006 16:32	-0.200	0.080	2.063	379.0	2.006
453	5/17/2006 16:33	-0.210	0.073	2.060	380.0	2.003
454	5/17/2006 16:34	-0.220	0.067	2.067	381.0	2.011
455	5/17/2006 16:35	-0.230	0.060	2.058	382.0	2.003
456	5/17/2006 16:36	-0.240	0.053	2.056	383.0	2.002
457	5/17/2006 16:37	-0.248	0.047	2.056	384.0	2.003
458	5/17/2006 16:38	-0.257	0.040	2.054	385.0	2.002
459	5/17/2006 16:39	-0.265				
460	5/17/2006 16:40	-0.273				
461	5/17/2006 16:41	-0.282				
462	5/17/2006 16:42	-0.290				
463	5/17/2006 16:43	-0.300				
464	5/17/2006 16:44	-0.310				
465	5/17/2006 16:45	-0.320				
466	5/17/2006 16:46	-0.330				
467	5/17/2006 16:47	-0.340				
468	5/17/2006 16:48	-0.350				
469	5/17/2006 16:49	-0.360				
470	5/17/2006 16:50	-0.370				
471	5/17/2006 16:51	-0.380				
472	5/17/2006 16:52	-0.390				
473	5/17/2006 16:53	-0.400				
474	5/17/2006 16:54	-0.410				
475	5/17/2006 16:55	-0.422				
476	5/17/2006 16:56	-0.433				
477	5/17/2006 16:57	-0.445				
478	5/17/2006 16:58	-0.457				

Figure A-1 Tidal Correction

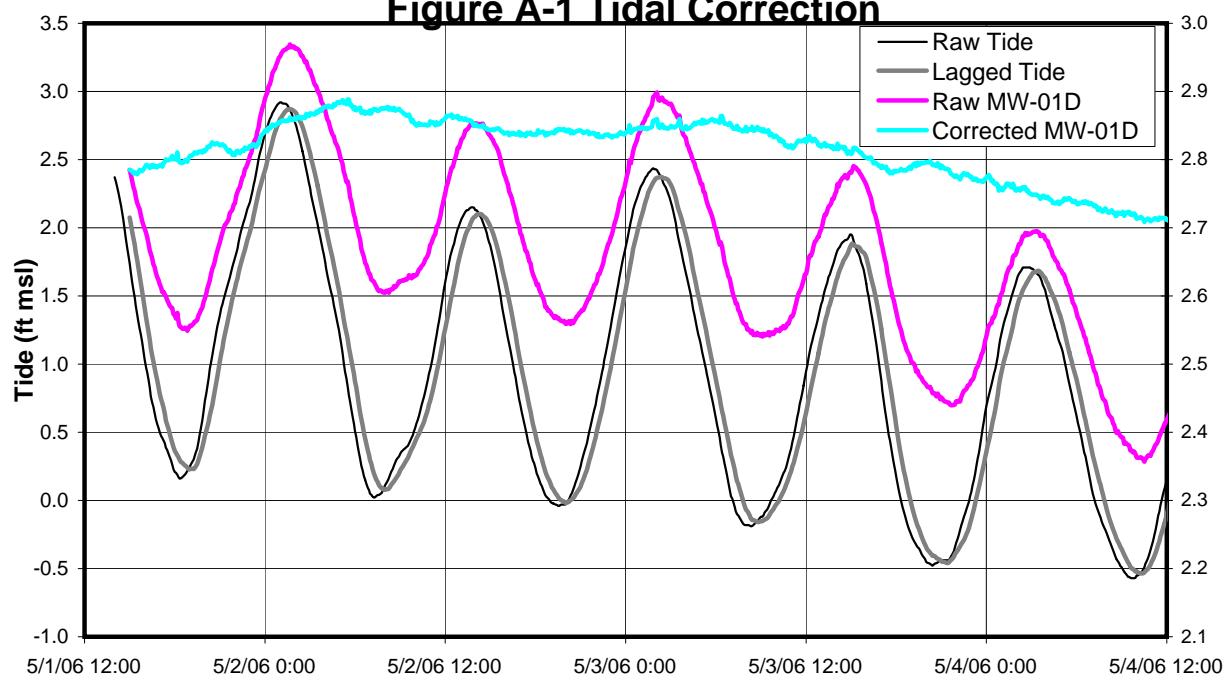
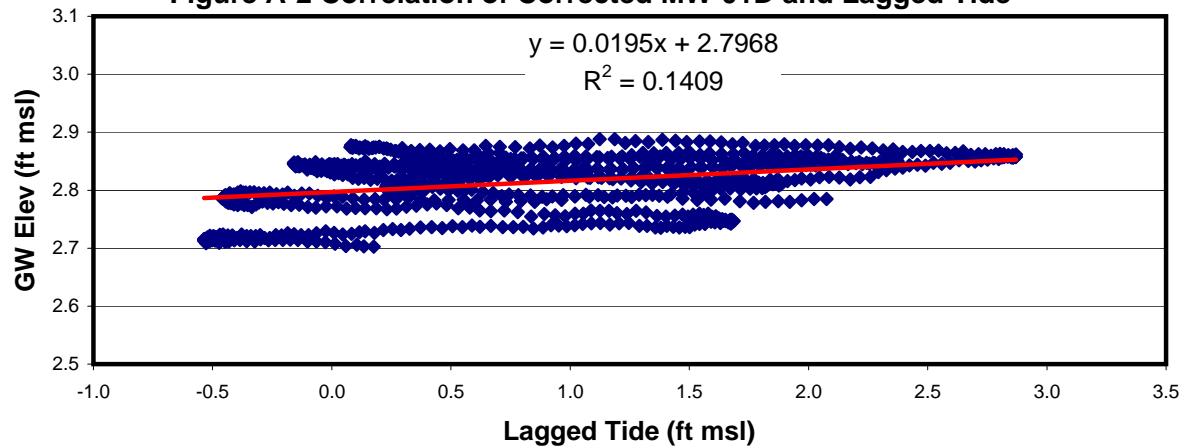


Figure A-2 Correlation of Corrected MW-01D and Lagged Tide



Attachment B: Pump Test Results and Analysis

The data from the aquifer pumping test is provided in Table B-1 and the manual water level measurements and flowrates collected are provided in Table B-2. The time-drawdown data from the deep aquifer observation well SJS02-MW01D was analyzed to provide estimates of the deep aquifer properties. The analysis was conducted using commercially available software (Aqtesolv) and the Hantush-Jacob Leaky Aquifer Method and is shown on Figure B-1. The results show an estimated transmissivity of 1,521 ft²/day and a storage coefficient of 3.4×10^{-4} . These values are consistent with regional information for the deep aquifer (Harsh and Laczniak, 1990). The time-water level curve is provided as Figure B-2.

Table B-1
Aquifer Pumping Test Data

In-Situ Inc.	MiniTroll Pro	
Report generated:	5/26/2006 11:39:18 \\Ariadne\Proj\CLEANII\BASES\St. Juliens\Site 2\ERI\Deep Groundwater Tech Memo\Pump	
Report from file:	Test Data\Test Data\SN13796 2006-05-17 100437 mw01d051706.bin	
DataMgr Version	3.71	
Serial number:	13796	
Firmware Version	3.09	
Unit name:		
Test name:	mw01d	
Test defined on:	5/17/2006 10:04:24	
Test started on:	5/17/2006 10:04:37	
Test stopped on:	N/A N/A	
Test extracted on:	N/A	
Data gathered using Linear testing		
Time between data points:	1.0000 Minutes.	
Number of data samples:	395	
TOTAL DATA SAMPLES	395	
Channel number [1]		
Measurement type:	Temperature	
Channel name:	OnBoard Temp	
Channel number [2]		
Measurement type:	Pressure	
Channel name:	Head	
Sensor Range:	30 PSI.	
Specific gravity:	1	
Mode:	TOC	
User-defined reference:	0 Feet H2O	
Referenced on:	channel definition.	
Pressure head at reference:	14.781 Feet H2O	
Manual Water Levels		
	Time	Level
	0.0	2.27
	23.0	2.19
	85.0	2.22
	130.0	2.27
	191.0	2.29
	263.0	2.22
	339.0	2.13
	380.0	2.06

Table B-1
Aquifer Pumping Test Data

Date	Time	ET (min)	Chan[1] Fahrenheit	Chan[2] Feet H2O	Test Time	Logged Water Level (ft msl)	Manual Water Level (ft msl)	Corrected Water Levels (ft msl)
5/17/2006	10:05		1	59.58	-0.001			
5/17/2006	10:06		2	59.56	-0.001			
5/17/2006	10:07		3	59.49	-0.002			
5/17/2006	10:08		4	59.56	-0.001			
5/17/2006	10:09		5	59.51	0.001			
5/17/2006	10:10		6	59.51	0.001			
5/17/2006	10:11		7	59.46	0			
5/17/2006	10:12		8	59.42	0			
5/17/2006	10:13		9	59.4	0	0.0	2.27	2.270
5/17/2006	10:14		10	59.4	-0.003	1.0	2.273	2.273
5/17/2006	10:15		11	59.46	-0.002	2.0	2.272	2.272
5/17/2006	10:16		12	59.46	0.005	3.0	2.265	2.266
5/17/2006	10:17		13	59.46	0.017	4.0	2.253	2.254
5/17/2006	10:18		14	59.49	0.027	5.0	2.243	2.244
5/17/2006	10:19		15	59.49	0.037	6.0	2.233	2.234
5/17/2006	10:20		16	59.46	0.046	7.0	2.224	2.226
5/17/2006	10:21		17	59.42	0.053	8.0	2.217	2.219
5/17/2006	10:22		18	59.46	0.058	9.0	2.212	2.214
5/17/2006	10:23		19	59.49	0.061	10.0	2.209	2.211
5/17/2006	10:24		20	59.56	0.064	11.0	2.206	2.208
5/17/2006	10:25		21	59.58	0.069	12.0	2.201	2.204
5/17/2006	10:26		22	59.58	0.071	13.0	2.199	2.202
5/17/2006	10:27		23	59.56	0.076	14.0	2.194	2.197
5/17/2006	10:28		24	59.44	0.08	15.0	2.19	2.193
5/17/2006	10:29		25	59.44	0.082	16.0	2.188	2.191
5/17/2006	10:30		26	59.44	0.084	17.0	2.186	2.190
5/17/2006	10:31		27	59.35	0.088	18.0	2.182	2.186
5/17/2006	10:32		28	59.4	0.089	19.0	2.181	2.185
5/17/2006	10:33		29	59.4	0.091	20.0	2.179	2.183
5/17/2006	10:34		30	59.42	0.091	21.0	2.179	2.184
5/17/2006	10:35		31	59.42	0.091	22.0	2.179	2.184
5/17/2006	10:36		32	59.49	0.085	23.0	2.185	2.190
5/17/2006	10:37		33	59.49	0.087	24.0	2.183	2.188
5/17/2006	10:38		34	59.46	0.089	25.0	2.181	2.186
5/17/2006	10:39		35	59.49	0.09	26.0	2.18	2.186
5/17/2006	10:40		36	59.53	0.09	27.0	2.18	2.186
5/17/2006	10:41		37	59.53	0.09	28.0	2.18	2.186
5/17/2006	10:42		38	59.51	0.092	29.0	2.178	2.184
5/17/2006	10:43		39	59.46	0.094	30.0	2.176	2.182
5/17/2006	10:44		40	59.44	0.094	31.0	2.176	2.183
5/17/2006	10:45		41	59.4	0.093	32.0	2.177	2.184
5/17/2006	10:46		42	59.42	0.094	33.0	2.176	2.183
5/17/2006	10:47		43	59.44	0.092	34.0	2.178	2.185
5/17/2006	10:48		44	59.42	0.094	35.0	2.176	2.184
5/17/2006	10:49		45	59.44	0.092	36.0	2.178	2.186
5/17/2006	10:50		46	59.46	0.089	37.0	2.181	2.189
5/17/2006	10:51		47	59.44	0.092	38.0	2.178	2.186
5/17/2006	10:52		48	59.4	0.091	39.0	2.179	2.187
5/17/2006	10:53		49	59.37	0.093	40.0	2.177	2.186
5/17/2006	10:54		50	59.4	0.091	41.0	2.179	2.188
5/17/2006	10:55		51	59.4	0.093	42.0	2.177	2.186
5/17/2006	10:56		52	59.4	0.091	43.0	2.179	2.188
5/17/2006	10:57		53	59.42	0.091	44.0	2.179	2.188
5/17/2006	10:58		54	59.35	0.093	45.0	2.177	2.187
5/17/2006	10:59		55	59.37	0.088	46.0	2.182	2.192
5/17/2006	11:00		56	59.35	0.091	47.0	2.179	2.189
5/17/2006	11:01		57	59.35	0.091	48.0	2.179	2.189
5/17/2006	11:02		58	59.4	0.089	49.0	2.181	2.191
5/17/2006	11:03		59	59.4	0.089	50.0	2.181	2.192
5/17/2006	11:04		60	59.42	0.089	51.0	2.181	2.192
5/17/2006	11:05		61	59.37	0.088	52.0	2.182	2.193

Table B-1
Aquifer Pumping Test Data

Date	Time	ET (min)	Chan[1] Fahrenheit	Chan[2] Feet H2O	Test Time	Logged Water Level (ft msl)	Manual Water Level (ft msl)	Corrected Water Levels (ft msl)	
5/17/2006	11:06		62	59.42	0.084	53.0	2.186	2.197	
5/17/2006	11:07		63	59.42	0.084	54.0	2.186	2.198	
5/17/2006	11:08		64	59.44	0.084	55.0	2.186	2.198	
5/17/2006	11:09		65	59.46	0.082	56.0	2.188	2.200	
5/17/2006	11:10		66	59.46	0.085	57.0	2.185	2.197	
5/17/2006	11:11		67	59.46	0.082	58.0	2.188	2.200	
5/17/2006	11:12		68	59.46	0.085	59.0	2.185	2.198	
5/17/2006	11:13		69	59.42	0.082	60.0	2.188	2.201	
5/17/2006	11:14		70	59.4	0.084	61.0	2.186	2.199	
5/17/2006	11:15		71	59.4	0.081	62.0	2.189	2.202	
5/17/2006	11:16		72	59.42	0.082	63.0	2.188	2.201	
5/17/2006	11:17		73	59.46	0.077	64.0	2.193	2.207	
5/17/2006	11:18		74	59.51	0.078	65.0	2.192	2.206	
5/17/2006	11:19		75	59.53	0.076	66.0	2.194	2.208	
5/17/2006	11:20		76	59.53	0.073	67.0	2.197	2.211	
5/17/2006	11:21		77	59.51	0.075	68.0	2.195	2.209	
5/17/2006	11:22		78	59.42	0.077	69.0	2.193	2.208	
5/17/2006	11:23		79	59.37	0.079	70.0	2.191	2.206	
5/17/2006	11:24		80	59.35	0.079	71.0	2.191	2.206	
5/17/2006	11:25		81	59.31	0.078	72.0	2.192	2.207	
5/17/2006	11:26		82	59.35	0.074	73.0	2.196	2.211	
5/17/2006	11:27		83	59.37	0.074	74.0	2.196	2.212	
5/17/2006	11:28		84	59.28	0.075	75.0	2.195	2.211	
5/17/2006	11:29		85	59.33	0.076	76.0	2.194	2.210	
5/17/2006	11:30		86	59.26	0.075	77.0	2.195	2.211	
5/17/2006	11:31		87	59.31	0.071	78.0	2.199	2.216	
5/17/2006	11:32		88	59.31	0.071	79.0	2.199	2.216	
5/17/2006	11:33		89	59.33	0.069	80.0	2.201	2.218	
5/17/2006	11:34		90	59.33	0.066	81.0	2.204	2.221	
5/17/2006	11:35		91	59.33	0.066	82.0	2.204	2.221	
5/17/2006	11:36		92	59.4	0.065	83.0	2.205	2.223	
5/17/2006	11:37		93	59.42	0.06	84.0	2.21	2.228	
5/17/2006	11:38		94	59.46	0.068	85.0	2.202	2.22	2.220
5/17/2006	11:39		95	59.49	0.066	86.0	2.204		2.222
5/17/2006	11:40		96	59.49	0.066	87.0	2.204		2.223
5/17/2006	11:41		97	59.51	0.063	88.0	2.207		2.226
5/17/2006	11:42		98	59.51	0.063	89.0	2.207		2.227
5/17/2006	11:43		99	59.46	0.065	90.0	2.205		2.225
5/17/2006	11:44		100	59.46	0.063	91.0	2.207		2.228
5/17/2006	11:45		101	59.46	0.065	92.0	2.205		2.226
5/17/2006	11:46		102	59.44	0.063	93.0	2.207		2.229
5/17/2006	11:47		103	59.44	0.065	94.0	2.205		2.227
5/17/2006	11:48		104	59.44	0.063	95.0	2.207		2.230
5/17/2006	11:49		105	59.42	0.065	96.0	2.205		2.228
5/17/2006	11:50		106	59.42	0.062	97.0	2.208		2.232
5/17/2006	11:51		107	59.46	0.061	98.0	2.209		2.233
5/17/2006	11:52		108	59.49	0.058	99.0	2.212		2.237
5/17/2006	11:53		109	59.51	0.061	100.0	2.209		2.234
5/17/2006	11:54		110	59.46	0.061	101.0	2.209		2.234
5/17/2006	11:55		111	59.42	0.06	102.0	2.21		2.236
5/17/2006	11:56		112	59.49	0.056	103.0	2.214		2.240
5/17/2006	11:57		113	59.46	0.056	104.0	2.214		2.241
5/17/2006	11:58		114	59.46	0.053	105.0	2.217		2.244
5/17/2006	11:59		115	59.44	0.055	106.0	2.215		2.243
5/17/2006	12:00		116	59.51	0.051	107.0	2.219		2.247
5/17/2006	12:01		117	59.53	0.052	108.0	2.218		2.247
5/17/2006	12:02		118	59.46	0.053	109.0	2.217		2.246
5/17/2006	12:03		119	59.46	0.051	110.0	2.219		2.249
5/17/2006	12:04		120	59.46	0.048	111.0	2.222		2.252
5/17/2006	12:05		121	59.49	0.046	112.0	2.224		2.255
5/17/2006	12:06		122	59.46	0.048	113.0	2.222		2.253

Table B-1
Aquifer Pumping Test Data

Date	Time	ET (min)	Chan[1] Fahrenheit	Chan[2] Feet H2O	Test Time	Logged Water Level (ft msl)	Manual Water Level (ft msl)	Corrected Water Levels (ft msl)
5/17/2006	12:07		123	59.49	0.049	114.0	2.221	2.253
5/17/2006	12:08		124	59.51	0.049	115.0	2.221	2.253
5/17/2006	12:09		125	59.46	0.051	116.0	2.219	2.251
5/17/2006	12:10		126	59.46	0.046	117.0	2.224	2.257
5/17/2006	12:11		127	59.44	0.046	118.0	2.224	2.257
5/17/2006	12:12		128	59.46	0.046	119.0	2.224	2.258
5/17/2006	12:13		129	59.44	0.046	120.0	2.224	2.258
5/17/2006	12:14		130	59.42	0.046	121.0	2.224	2.259
5/17/2006	12:15		131	59.46	0.044	122.0	2.226	2.261
5/17/2006	12:16		132	59.46	0.044	123.0	2.226	2.262
5/17/2006	12:17		133	59.53	0.04	124.0	2.23	2.266
5/17/2006	12:18		134	59.53	0.04	125.0	2.23	2.267
5/17/2006	12:19		135	59.56	0.04	126.0	2.23	2.267
5/17/2006	12:20		136	59.53	0.04	127.0	2.23	2.268
5/17/2006	12:21		137	59.51	0.039	128.0	2.231	2.269
5/17/2006	12:22		138	59.53	0.04	129.0	2.23	2.269
5/17/2006	12:23		139	59.51	0.039	130.0	2.231	2.270
5/17/2006	12:24		140	59.49	0.037	131.0	2.233	2.272
5/17/2006	12:25		141	59.49	0.044	132.0	2.226	2.265
5/17/2006	12:26		142	59.46	0.048	133.0	2.222	2.262
5/17/2006	12:27		143	59.49	0.049	134.0	2.221	2.261
5/17/2006	12:28		144	59.46	0.048	135.0	2.222	2.262
5/17/2006	12:29		145	59.49	0.044	136.0	2.226	2.266
5/17/2006	12:30		146	59.49	0.044	137.0	2.226	2.266
5/17/2006	12:31		147	59.51	0.042	138.0	2.228	2.269
5/17/2006	12:32		148	59.53	0.042	139.0	2.228	2.269
5/17/2006	12:33		149	59.53	0.042	140.0	2.228	2.269
5/17/2006	12:34		150	59.51	0.042	141.0	2.228	2.269
5/17/2006	12:35		151	59.51	0.042	142.0	2.228	2.269
5/17/2006	12:36		152	59.53	0.04	143.0	2.23	2.272
5/17/2006	12:37		153	59.49	0.039	144.0	2.231	2.273
5/17/2006	12:38		154	59.44	0.041	145.0	2.229	2.271
5/17/2006	12:39		155	59.49	0.039	146.0	2.231	2.273
5/17/2006	12:40		156	59.51	0.037	147.0	2.233	2.275
5/17/2006	12:41		157	59.56	0.037	148.0	2.233	2.276
5/17/2006	12:42		158	59.56	0.037	149.0	2.233	2.276
5/17/2006	12:43		159	59.56	0.037	150.0	2.233	2.276
5/17/2006	12:44		160	59.56	0.035	151.0	2.235	2.278
5/17/2006	12:45		161	59.56	0.035	152.0	2.235	2.278
5/17/2006	12:46		162	59.53	0.037	153.0	2.233	2.277
5/17/2006	12:47		163	59.51	0.035	154.0	2.235	2.279
5/17/2006	12:48		164	59.51	0.035	155.0	2.235	2.279
5/17/2006	12:49		165	59.53	0.032	156.0	2.238	2.282
5/17/2006	12:50		166	59.53	0.03	157.0	2.24	2.284
5/17/2006	12:51		167	59.51	0.032	158.0	2.238	2.283
5/17/2006	12:52		168	59.51	0.032	159.0	2.238	2.283
5/17/2006	12:53		169	59.46	0.034	160.0	2.236	2.281
5/17/2006	12:54		170	59.49	0.032	161.0	2.238	2.283
5/17/2006	12:55		171	59.46	0.034	162.0	2.236	2.281
5/17/2006	12:56		172	59.51	0.035	163.0	2.235	2.280
5/17/2006	12:57		173	59.53	0.032	164.0	2.238	2.284
5/17/2006	12:58		174	59.53	0.032	165.0	2.238	2.284
5/17/2006	12:59		175	59.51	0.032	166.0	2.238	2.284
5/17/2006	13:00		176	59.51	0.03	167.0	2.24	2.286
5/17/2006	13:01		177	59.49	0.032	168.0	2.238	2.284
5/17/2006	13:02		178	59.53	0.032	169.0	2.238	2.285
5/17/2006	13:03		179	59.56	0.03	170.0	2.24	2.287
5/17/2006	13:04		180	59.62	0.029	171.0	2.241	2.288
5/17/2006	13:05		181	59.67	0.029	172.0	2.241	2.288
5/17/2006	13:06		182	59.69	0.027	173.0	2.243	2.290
5/17/2006	13:07		183	59.67	0.029	174.0	2.241	2.289

Table B-1
Aquifer Pumping Test Data

Date	Time	ET (min)	Chan[1] Fahrenheit	Chan[2] Feet H2O	Test Time	Logged Water Level (ft msl)	Manual Water Level (ft msl)	Corrected Water Levels (ft msl)
5/17/2006	13:08		184	59.69	0.029	175.0	2.241	2.289
5/17/2006	13:09		185	59.71	0.03	176.0	2.24	2.288
5/17/2006	13:10		186	59.69	0.027	177.0	2.243	2.291
5/17/2006	13:11		187	59.65	0.026	178.0	2.244	2.292
5/17/2006	13:12		188	59.65	0.029	179.0	2.241	2.290
5/17/2006	13:13		189	59.62	0.031	180.0	2.239	2.288
5/17/2006	13:14		190	59.62	0.029	181.0	2.241	2.290
5/17/2006	13:15		191	59.62	0.031	182.0	2.239	2.288
5/17/2006	13:16		192	59.65	0.029	183.0	2.241	2.290
5/17/2006	13:17		193	59.62	0.031	184.0	2.239	2.289
5/17/2006	13:18		194	59.6	0.028	185.0	2.242	2.292
5/17/2006	13:19		195	59.58	0.033	186.0	2.237	2.287
5/17/2006	13:20		196	59.56	0.03	187.0	2.24	2.290
5/17/2006	13:21		197	59.58	0.033	188.0	2.237	2.287
5/17/2006	13:22		198	59.58	0.031	189.0	2.239	2.290
5/17/2006	13:23		199	59.62	0.031	190.0	2.239	2.290
5/17/2006	13:24		200	59.6	0.031	191.0	2.239	2.290
5/17/2006	13:25		201	59.53	0.035	192.0	2.235	2.285
5/17/2006	13:26		202	59.51	0.032	193.0	2.238	2.288
5/17/2006	13:27		203	59.51	0.032	194.0	2.238	2.287
5/17/2006	13:28		204	59.53	0.035	195.0	2.235	2.284
5/17/2006	13:29		205	59.53	0.013	196.0	2.257	2.305
5/17/2006	13:30		206	59.6	0.014	197.0	2.256	2.304
5/17/2006	13:31		207	59.65	0.01	198.0	2.26	2.307
5/17/2006	13:32		208	59.67	0.012	199.0	2.258	2.305
5/17/2006	13:33		209	59.67	0.012	200.0	2.258	2.304
5/17/2006	13:34		210	59.65	0.014	201.0	2.256	2.302
5/17/2006	13:35		211	59.6	0.019	202.0	2.251	2.296
5/17/2006	13:36		212	59.6	0.016	203.0	2.254	2.299
5/17/2006	13:37		213	59.56	0.018	204.0	2.252	2.296
5/17/2006	13:38		214	59.56	0.021	205.0	2.249	2.293
5/17/2006	13:39		215	59.58	0.018	206.0	2.252	2.295
5/17/2006	13:40		216	59.6	0.016	207.0	2.254	2.297
5/17/2006	13:41		217	59.62	0.017	208.0	2.253	2.295
5/17/2006	13:42		218	59.65	0.017	209.0	2.253	2.295
5/17/2006	13:43		219	59.65	0.017	210.0	2.253	2.294
5/17/2006	13:44		220	59.62	0.019	211.0	2.251	2.291
5/17/2006	13:45		221	59.6	0.024	212.0	2.246	2.286
5/17/2006	13:46		222	59.6	0.024	213.0	2.246	2.285
5/17/2006	13:47		223	59.58	0.026	214.0	2.244	2.283
5/17/2006	13:48		224	59.53	0.025	215.0	2.245	2.283
5/17/2006	13:49		225	59.56	0.025	216.0	2.245	2.283
5/17/2006	13:50		226	59.58	0.026	217.0	2.244	2.281
5/17/2006	13:51		227	59.6	0.026	218.0	2.244	2.281
5/17/2006	13:52		228	59.65	0.026	219.0	2.244	2.280
5/17/2006	13:53		229	59.67	0.027	220.0	2.243	2.279
5/17/2006	13:54		230	59.71	0.025	221.0	2.245	2.280
5/17/2006	13:55		231	59.65	0.029	222.0	2.241	2.276
5/17/2006	13:56		232	59.58	0.033	223.0	2.237	2.271
5/17/2006	13:57		233	59.53	0.032	224.0	2.238	2.272
5/17/2006	13:58		234	59.53	0.032	225.0	2.238	2.271
5/17/2006	13:59		235	59.6	0.031	226.0	2.239	2.272
5/17/2006	14:00		236	59.65	0.031	227.0	2.239	2.271
5/17/2006	14:01		237	59.67	0.032	228.0	2.238	2.269
5/17/2006	14:02		238	59.65	0.031	229.0	2.239	2.270
5/17/2006	14:03		239	59.6	0.033	230.0	2.237	2.267
5/17/2006	14:04		240	59.62	0.036	231.0	2.234	2.264
5/17/2006	14:05		241	59.62	0.036	232.0	2.234	2.263
5/17/2006	14:06		242	59.6	0.033	233.0	2.237	2.266
5/17/2006	14:07		243	59.6	0.036	234.0	2.234	2.262
5/17/2006	14:08		244	59.58	0.038	235.0	2.232	2.260

Table B-1
Aquifer Pumping Test Data

Date	Time	ET (min)	Chan[1] Fahrenheit	Chan[2] Feet H2O	Test Time	Logged Water Level (ft msl)	Manual Water Level (ft msl)	Corrected Water Levels (ft msl)
5/17/2006	14:09		245	59.53	0.037	236.0	2.233	2.260
5/17/2006	14:10		246	59.46	0.041	237.0	2.229	2.256
5/17/2006	14:11		247	59.49	0.044	238.0	2.226	2.252
5/17/2006	14:12		248	59.51	0.044	239.0	2.226	2.252
5/17/2006	14:13		249	59.46	0.044	240.0	2.226	2.251
5/17/2006	14:14		250	59.49	0.046	241.0	2.224	2.249
5/17/2006	14:15		251	59.49	0.046	242.0	2.224	2.248
5/17/2006	14:16		252	59.53	0.047	243.0	2.223	2.247
5/17/2006	14:17		253	59.51	0.047	244.0	2.223	2.246
5/17/2006	14:18		254	59.51	0.047	245.0	2.223	2.246
5/17/2006	14:19		255	59.49	0.049	246.0	2.221	2.243
5/17/2006	14:20		256	59.49	0.051	247.0	2.219	2.240
5/17/2006	14:21		257	59.46	0.051	248.0	2.219	2.240
5/17/2006	14:22		258	59.44	0.055	249.0	2.215	2.235
5/17/2006	14:23		259	59.44	0.058	250.0	2.212	2.232
5/17/2006	14:24		260	59.44	0.058	251.0	2.212	2.231
5/17/2006	14:25		261	59.46	0.058	252.0	2.212	2.231
5/17/2006	14:26		262	59.46	0.058	253.0	2.212	2.230
5/17/2006	14:27		263	59.46	0.058	254.0	2.212	2.230
5/17/2006	14:28		264	59.44	0.063	255.0	2.207	2.224
5/17/2006	14:29		265	59.44	0.063	256.0	2.207	2.224
5/17/2006	14:30		266	59.42	0.062	257.0	2.208	2.224
5/17/2006	14:31		267	59.44	0.065	258.0	2.205	2.221
5/17/2006	14:32		268	59.44	0.065	259.0	2.205	2.220
5/17/2006	14:33		269	59.46	0.065	260.0	2.205	2.220
5/17/2006	14:34		270	59.51	0.063	261.0	2.207	2.221
5/17/2006	14:35		271	59.49	0.066	262.0	2.204	2.218
5/17/2006	14:36		272	59.49	0.063	263.0	2.207	2.220
5/17/2006	14:37		273	59.49	0.066	264.0	2.204	2.217
5/17/2006	14:38		274	59.49	0.066	265.0	2.204	2.217
5/17/2006	14:39		275	59.46	0.073	266.0	2.197	2.211
5/17/2006	14:40		276	59.49	0.073	267.0	2.197	2.211
5/17/2006	14:41		277	59.49	0.075	268.0	2.195	2.209
5/17/2006	14:42		278	59.46	0.073	269.0	2.197	2.211
5/17/2006	14:43		279	59.49	0.073	270.0	2.197	2.212
5/17/2006	14:44		280	59.49	0.075	271.0	2.195	2.210
5/17/2006	14:45		281	59.53	0.071	272.0	2.199	2.214
5/17/2006	14:46		282	59.58	0.076	273.0	2.194	2.209
5/17/2006	14:47		283	59.62	0.077	274.0	2.193	2.208
5/17/2006	14:48		284	59.67	0.077	275.0	2.193	2.209
5/17/2006	14:49		285	59.69	0.078	276.0	2.192	2.208
5/17/2006	14:50		286	59.71	0.08	277.0	2.19	2.206
5/17/2006	14:51		287	59.69	0.082	278.0	2.188	2.204
5/17/2006	14:52		288	59.76	0.081	279.0	2.189	2.206
5/17/2006	14:53		289	59.81	0.081	280.0	2.189	2.206
5/17/2006	14:54		290	59.83	0.084	281.0	2.186	2.203
5/17/2006	14:55		291	59.85	0.084	282.0	2.186	2.203
5/17/2006	14:56		292	59.85	0.087	283.0	2.183	2.200
5/17/2006	14:57		293	59.85	0.087	284.0	2.183	2.201
5/17/2006	14:58		294	59.9	0.087	285.0	2.183	2.201
5/17/2006	14:59		295	59.92	0.09	286.0	2.18	2.198
5/17/2006	15:00		296	59.9	0.092	287.0	2.178	2.196
5/17/2006	15:01		297	59.9	0.094	288.0	2.176	2.195
5/17/2006	15:02		298	59.83	0.096	289.0	2.174	2.193
5/17/2006	15:03		299	59.81	0.098	290.0	2.172	2.191
5/17/2006	15:04		300	59.76	0.1	291.0	2.17	2.189
5/17/2006	15:05		301	59.74	0.1	292.0	2.17	2.189
5/17/2006	15:06		302	59.71	0.102	293.0	2.168	2.188
5/17/2006	15:07		303	59.74	0.102	294.0	2.168	2.188
5/17/2006	15:08		304	59.76	0.102	295.0	2.168	2.188
5/17/2006	15:09		305	59.76	0.105	296.0	2.165	2.185

Table B-1
Aquifer Pumping Test Data

Date	Time	ET (min)	Chan[1] Fahrenheit	Chan[2] Feet H2O	Test Time	Logged Water Level (ft msl)	Manual Water Level (ft msl)	Corrected Water Levels (ft msl)
5/17/2006	15:10		306	59.76	0.107	297.0	2.163	2.184
5/17/2006	15:11		307	59.76	0.107	298.0	2.163	2.184
5/17/2006	15:12		308	59.76	0.11	299.0	2.16	2.181
5/17/2006	15:13		309	59.76	0.11	300.0	2.16	2.181
5/17/2006	15:14		310	59.76	0.112	301.0	2.158	2.180
5/17/2006	15:15		311	59.71	0.114	302.0	2.156	2.178
5/17/2006	15:16		312	59.71	0.114	303.0	2.156	2.178
5/17/2006	15:17		313	59.74	0.117	304.0	2.153	2.175
5/17/2006	15:18		314	59.74	0.117	305.0	2.153	2.175
5/17/2006	15:19		315	59.74	0.119	306.0	2.151	2.174
5/17/2006	15:20		316	59.74	0.121	307.0	2.149	2.172
5/17/2006	15:21		317	59.71	0.121	308.0	2.149	2.172
5/17/2006	15:22		318	59.65	0.125	309.0	2.145	2.168
5/17/2006	15:23		319	59.65	0.125	310.0	2.145	2.169
5/17/2006	15:24		320	59.62	0.127	311.0	2.143	2.167
5/17/2006	15:25		321	59.62	0.13	312.0	2.14	2.164
5/17/2006	15:26		322	59.62	0.13	313.0	2.14	2.164
5/17/2006	15:27		323	59.6	0.132	314.0	2.138	2.162
5/17/2006	15:28		324	59.62	0.134	315.0	2.136	2.161
5/17/2006	15:29		325	59.6	0.137	316.0	2.133	2.158
5/17/2006	15:30		326	59.6	0.139	317.0	2.131	2.156
5/17/2006	15:31		327	59.58	0.136	318.0	2.134	2.159
5/17/2006	15:32		328	59.65	0.14	319.0	2.13	2.156
5/17/2006	15:33		329	59.67	0.14	320.0	2.13	2.156
5/17/2006	15:34		330	59.65	0.142	321.0	2.128	2.154
5/17/2006	15:35		331	59.62	0.144	322.0	2.126	2.152
5/17/2006	15:36		332	59.6	0.149	323.0	2.121	2.147
5/17/2006	15:37		333	59.62	0.149	324.0	2.121	2.148
5/17/2006	15:38		334	59.67	0.149	325.0	2.121	2.148
5/17/2006	15:39		335	59.67	0.149	326.0	2.121	2.148
5/17/2006	15:40		336	59.62	0.154	327.0	2.116	2.143
5/17/2006	15:41		337	59.6	0.153	328.0	2.117	2.145
5/17/2006	15:42		338	59.62	0.154	329.0	2.116	2.144
5/17/2006	15:43		339	59.62	0.154	330.0	2.116	2.144
5/17/2006	15:44		340	59.62	0.156	331.0	2.114	2.142
5/17/2006	15:45		341	59.6	0.156	332.0	2.114	2.142
5/17/2006	15:46		342	59.51	0.164	333.0	2.106	2.135
5/17/2006	15:47		343	59.46	0.166	334.0	2.104	2.133
5/17/2006	15:48		344	59.49	0.169	335.0	2.101	2.130
5/17/2006	15:49		345	59.53	0.17	336.0	2.1	2.129
5/17/2006	15:50		346	59.56	0.172	337.0	2.098	2.128
5/17/2006	15:51		347	59.53	0.167	338.0	2.103	2.133
5/17/2006	15:52		348	59.53	0.17	339.0	2.1	2.130
5/17/2006	15:53		349	59.49	0.174	340.0	2.096	2.126
5/17/2006	15:54		350	59.51	0.174	341.0	2.096	2.126
5/17/2006	15:55		351	59.56	0.177	342.0	2.093	2.122
5/17/2006	15:56		352	59.58	0.177	343.0	2.093	2.122
5/17/2006	15:57		353	59.6	0.178	344.0	2.092	2.121
5/17/2006	15:58		354	59.65	0.18	345.0	2.09	2.119
5/17/2006	15:59		355	59.65	0.18	346.0	2.09	2.119
5/17/2006	16:00		356	59.65	0.183	347.0	2.087	2.116
5/17/2006	16:01		357	59.67	0.183	348.0	2.087	2.115
5/17/2006	16:02		358	59.69	0.186	349.0	2.084	2.112
5/17/2006	16:03		359	59.71	0.186	350.0	2.084	2.112
5/17/2006	16:04		360	59.76	0.184	351.0	2.086	2.114
5/17/2006	16:05		361	59.74	0.186	352.0	2.084	2.112
5/17/2006	16:06		362	59.69	0.191	353.0	2.079	2.107
5/17/2006	16:07		363	59.67	0.193	354.0	2.077	2.104
5/17/2006	16:08		364	59.65	0.192	355.0	2.078	2.105
5/17/2006	16:09		365	59.6	0.197	356.0	2.073	2.100
5/17/2006	16:10		366	59.58	0.201	357.0	2.069	2.096

Table B-1
Aquifer Pumping Test Data

Date	Time	ET (min)	Chan[1] Fahrenheit	Chan[2] Feet H2O	Test Time	Logged Water Level (ft msl)	Manual Water Level (ft msl)	Corrected Water Levels (ft msl)
5/17/2006	16:11		367	59.58	0.201	358.0	2.069	2.096
5/17/2006	16:12		368	59.58	0.204	359.0	2.066	2.093
5/17/2006	16:13		369	59.58	0.204	360.0	2.066	2.092
5/17/2006	16:14		370	59.56	0.208	361.0	2.062	2.088
5/17/2006	16:15		371	59.6	0.206	362.0	2.064	2.090
5/17/2006	16:16		372	59.62	0.209	363.0	2.061	2.087
5/17/2006	16:17		373	59.6	0.209	364.0	2.061	2.087
5/17/2006	16:18		374	59.53	0.213	365.0	2.057	2.083
5/17/2006	16:19		375	59.53	0.213	366.0	2.057	2.082
5/17/2006	16:20		376	59.53	0.215	367.0	2.055	2.080
5/17/2006	16:21		377	59.53	0.218	368.0	2.052	2.077
5/17/2006	16:22		378	59.56	0.218	369.0	2.052	2.077
5/17/2006	16:23		379	59.6	0.218	370.0	2.052	2.077
5/17/2006	16:24		380	59.67	0.219	371.0	2.051	2.076
5/17/2006	16:25		381	59.67	0.222	372.0	2.048	2.072
5/17/2006	16:26		382	59.67	0.226	373.0	2.044	2.068
5/17/2006	16:27		383	59.67	0.224	374.0	2.046	2.070
5/17/2006	16:28		384	59.65	0.224	375.0	2.046	2.070
5/17/2006	16:29		385	59.69	0.229	376.0	2.041	2.065
5/17/2006	16:30		386	59.71	0.229	377.0	2.041	2.065
5/17/2006	16:31		387	59.76	0.23	378.0	2.04	2.063
5/17/2006	16:32		388	59.81	0.23	379.0	2.04	2.063
5/17/2006	16:33		389	59.81	0.233	380.0	2.037	2.06
5/17/2006	16:34		390	59.81	0.226	381.0	2.044	2.067
5/17/2006	16:35		391	59.78	0.235	382.0	2.035	2.058
5/17/2006	16:36		392	59.76	0.237	383.0	2.033	2.056
5/17/2006	16:37		393	59.76	0.237	384.0	2.033	2.056
5/17/2006	16:38		394	59.76	0.239	385.0	2.031	2.054

Table B-2
Manual Water Level Measurements and Flowrates
During Aquifer Pumping Test

Date	Time	Well ID	DTW	TOC Elevation	Water Table Elevation	Flow Rate (gal/min)
5/17/2006	822	MW10D		7.05	9.24	2.19
	825	MW10S		7.63	9.18	1.55
	856	MW12S		4.44	6.13	1.69
	859	MW01D		5.71	7.94	2.23
	902	MW02D		4.82	7.04	2.22
	905	MW05D		6.61	8.66	2.05
	957	MW10S		7.64	9.18	1.54
	1000	MW12S		4.45	6.13	1.68
	1002	MW01D		5.67	7.94	2.27
	1006	MW10D		6.99	9.24	2.25
	1013 Start of Pump Test					
	1015	MW10D		30.29	9.24	-21.05
	1017	MW10D		41.38	9.24	-32.14
	1028	MW10D		43.86	9.24	-34.62
	1036	MW01D		5.75	7.94	2.19
	1039	MW02D		4.72	7.04	2.32
	1041	MW05D		6.55	8.66	2.11
	1047	MW12S		4.45	6.13	1.68
	1048	MW10D		42.69	9.24	-33.45
	1049	MW10S		7.64	9.18	1.54
	1134	MW10D		42.7	9.24	-33.46
	1136	MW12S		4.44	6.13	1.69
	1138	MW01D		5.72	7.94	2.22
	1208	MW02D		4.63	7.04	2.41
	1212	MW05D		6.45	8.66	2.21
	1220	MW10D		42.45	9.24	-33.21
	1223	MW01D		5.67	7.94	2.27
	1226	MW02D		4.62	7.04	2.42
	1229	MW05D		6.43	8.66	2.23
	1234	MW12S		4.45	6.13	1.68
	1235	MW10S		7.65	9.18	1.53
	1320	MW10D		42.28	9.24	-33.04
	1322	MW12S		4.44	6.13	1.69
	1324	MW01D		5.65	7.94	2.29
	1331	MW02D		4.63	7.04	2.41
	1335	MW05D		6.4	8.66	2.26
	1339	MW10S		7.66	9.18	1.52
	1433	MW10D		42.35	9.24	-33.11
	1434	MW12S		4.44	6.13	1.69
	1436	MW01D		5.72	7.94	2.22
	1442	MW02D		4.73	7.04	2.31
	1445	MW05D		6.45	8.66	2.21
	1450	MW10S		7.68	9.18	1.5
	1546	MW10D		45	9.24	-35.76
						5.5

Table B-2
Manual Water Level Measurements and Flowrates
During Aquifer Pumping Test

Date	Time	Well ID	DTW	TOC Elevation	Water Table Elevation	Flow Rate (gal/min)
	1549	MW12S		4.47	6.13	1.66
	1552	MW01D		5.81	7.94	2.13
	1557	MW05D		6.52	8.66	2.14
	1559	MW02D		4.89	7.04	2.15
	1602	MW10S		7.68	9.18	1.5
	1627	MW10D		46.65	9.24	-37.41
	1631	MW12S		4.48	6.13	1.65
	1633	MW01D		5.88	7.94	2.06
	1635	MW02D		4.97	7.04	2.07
	1638	MW05D		6.59	8.66	2.07
	1646	MW10S		7.69	9.18	1.49
	1747	MW10D		46.49	9.24	-37.25
	1751	MW12S		4.5	6.13	1.63
	1753	MW01D		5.98	7.94	1.96
	1757	MW02D		5.11	7.04	1.93
	1800	MW05D		6.72	8.66	1.94
	1804	MW10S		7.72	9.18	1.46
	1826	MW10D		45.92	9.24	-36.68
	1826	MW12S		4.5	6.13	1.63
	1828	MW01D		6.03	7.94	1.91
	1831	MW02D		5.15	7.04	1.89
	1834	MW05D		6.75	8.66	1.91
	1839	MW10S		7.71	9.18	1.47
	1845 Shut Pump off and begin recovery test					
	1848	MW10D		8.32	9.24	0.92
	1849	MW10D		7.89	9.24	1.35
	1850	MW10D		7.5	9.24	1.74
	1851	MW10D		7.4	9.24	1.84
	1852	MW10D		7.36	9.24	1.88
	1853	MW10D		7.33	9.24	1.91
	1854	MW10D		7.32	9.24	1.92
	1855	MW10D		7.32	9.24	1.92
	1856	MW10D		7.31	9.24	1.93
	1857	MW10D		7.29	9.24	1.95
	1902	MW10D		7.28	9.24	1.96
	1904	MW12S		4.5	6.13	1.63
	1906	MW01D		5.93	7.94	2.01
	1909	MW02D		5.13	7.04	1.91
	1912	MW05D		6.77	8.66	1.89
	1921	MW10D		7.25	9.24	1.99
	1922	MW10S		7.72	9.18	1.46

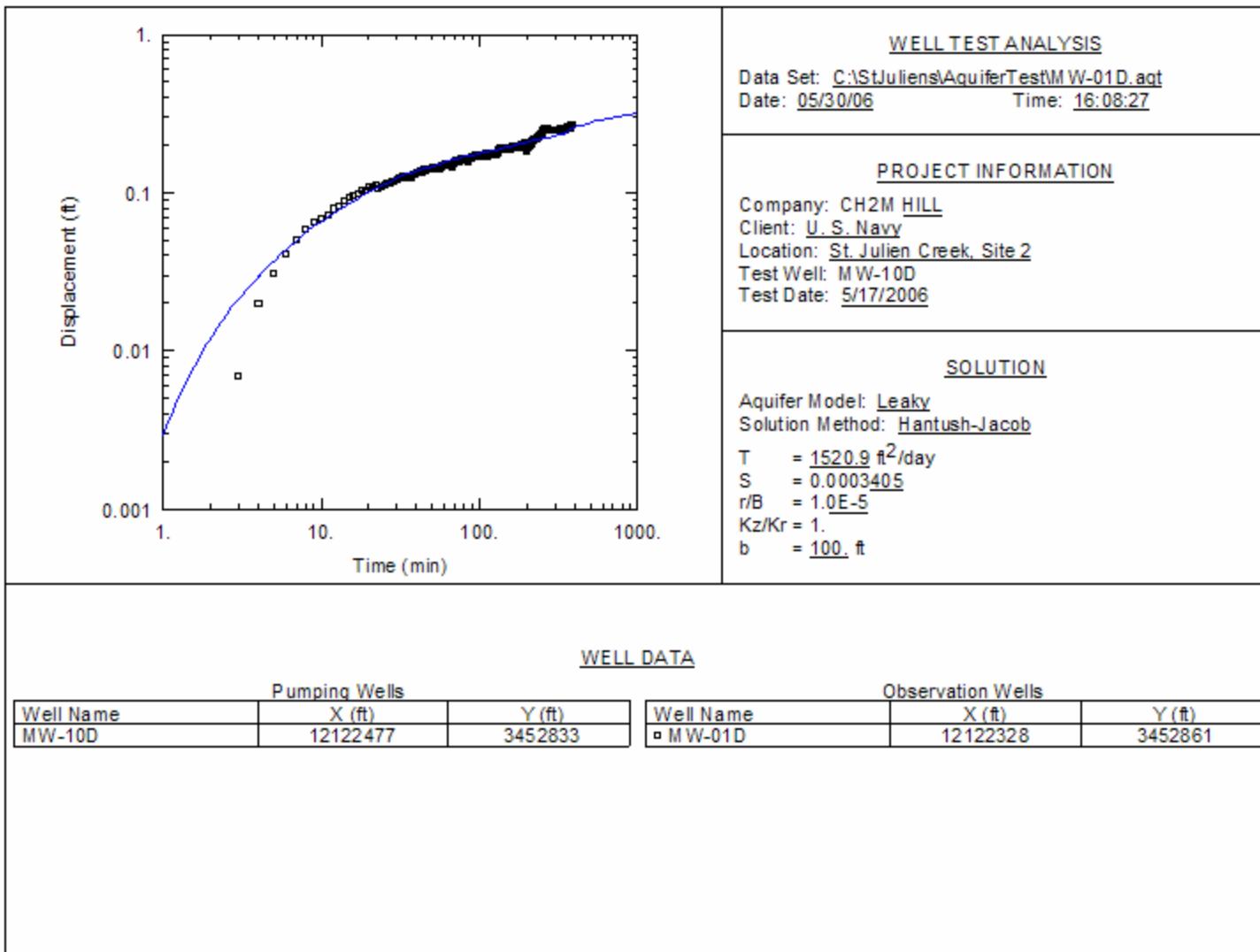
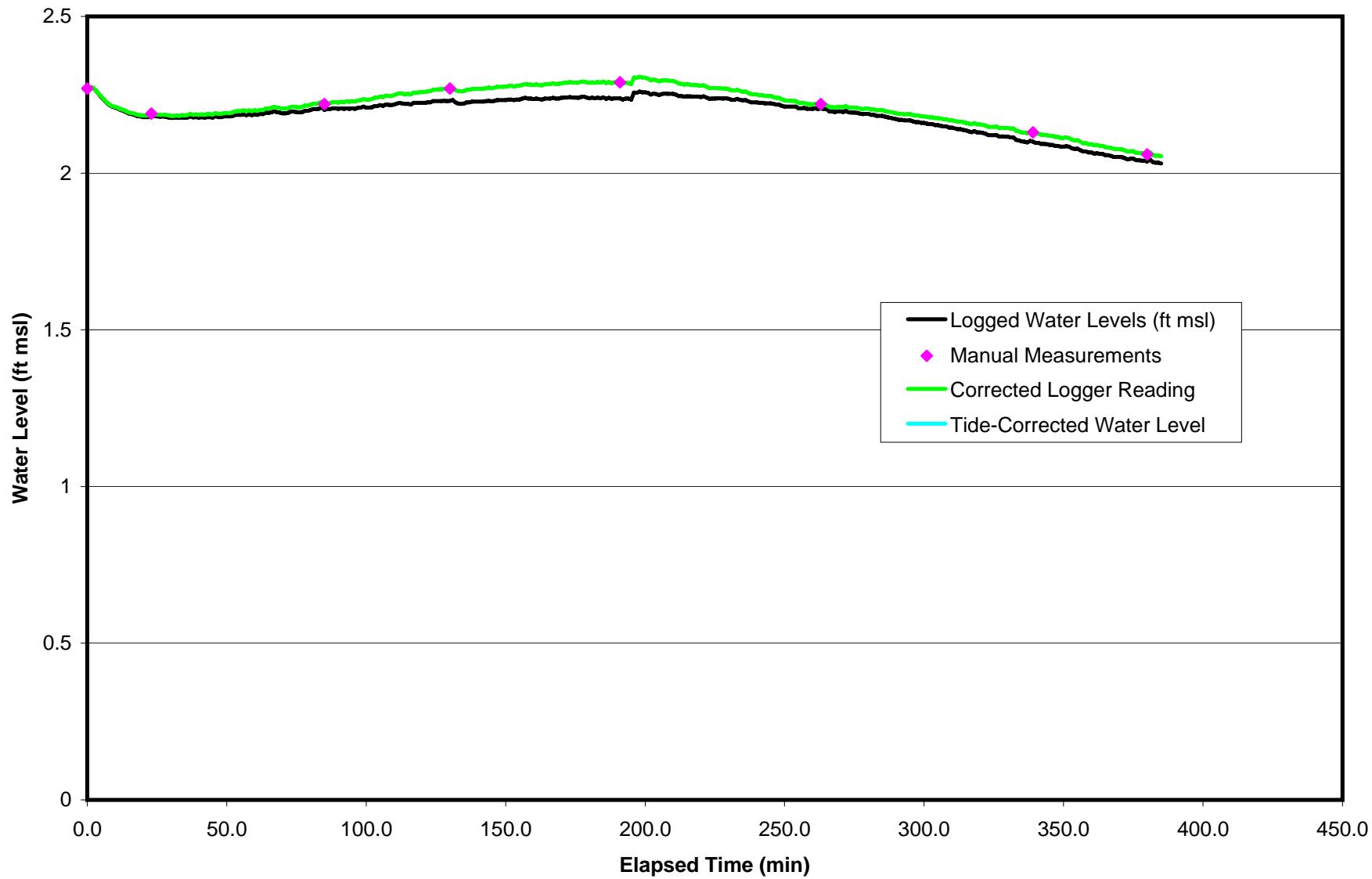


Figure B-1
Time-Drawdown Analysis from
Observation Well MW01D

Figure B-2 Time - Water Level Curve



Attachment C: Raw Analytical Data

Table C-1
Raw Analytical Data
Monitoring Well SJS02-MW10D
Site 2 Expanded Remedial Investigation
St. Juliens Creek Annex
Chesapeake, Virginia

Sample ID Sample Date	SJS02-MW10D-04D 12/03/04	SJS02-MW10D-05A 01/18/05	SJS02-MW10D-05A2 03/28/05	SJS02-MW10D-06B 05/16/06	SJS02-MW10D-06B2 05/17/06	SJS02-MW10D-06B2P 05/17/06	SJS02-MW10D-06B3 06/22/06	SJS02-MW10D-06B3P 06/22/06	SJS02-MW10D-06D ¹ 11/28/06	SJS02-MW10DP-06D ¹ 11/28/06
Chemical Name										
Volatile Organic Compounds (UG/L)										
1,1,1-Trichloroethane										
1,1,2,2-Tetrachloroethane										
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)										
1,1,2-Trichloroethane										
1,1-Dichloroethane										
1,1-Dichloroethene										
1,2,3-Trichlorobenzene										
1,2,4-Trichlorobenzene										
1,2-Dibromo-3-chloropropane										
1,2-Dibromoethane										
1,2-Dichlorobenzene										
1,2-Dichloroethane										
1,2-Dichloropropane										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
2-Butanone										
2-Hexanone										
4-Methyl-2-pentanone										
Acetone										
Benzene										
Bromochloromethane										
Bromodichloromethane										
Bromoform										
Bromomethane										
Carbon disulfide										
Carbon tetrachloride										
Chlorobenzene										
Chloroethane										
Chloroform										
Chloromethane										
Cyclohexane										
Dibromochloromethane										
Dichlorodifluoromethane (Freon-12)										
Ethylbenzene										
Methyl acetate										
Methyl-tert-butyl ether (MTBE)										
Methylcyclohexane										
Methylene chloride										
Styrene										
Tetrachloroethene										
Toluene										
Trichloroethene										
Trichlorofluoromethane(Freon-11)										
Vinyl chloride										
Xylene, total										
cis-1,2-Dichloroethene										
cis-1,3-Dichloropropene										
isopropylbenzene										
trans-1,2-Dichloroethene										
trans-1,3-Dichloropropene										

Notes:

B- Not detected substantially above the level reported in laboratory or field blanks

J- Reported value is estimated

R- Unreliable result

U- Not detected

NA- Not analyzed

Shading represents detection

¹ Unvalidated results shown, validated results will be provided in the Draft Final Site 2 ERI Report